The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. XLVIII. CHICAGO, ILLINOIS, MARCH 23, 1907. NO. 12.

Original Articles

THE COMMON BACTERIAL INFECTIONS OF THE DIGESTIVE TRACT AND THE INTOXICATIONS ARISING THEREFROM.*

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After presenting some general considerations relative to the bacterial flora of the human digestive tract in health, and showing that none of the experimental studies made by investigators is really conclusive as to the necessity of bacterial action in the digestive tract for the maintenance of health in adult mammals of the highest type, Dr. Herter proceeded:

Clearly, then, the intestinal bacteria are not required to carry on the ordinary digestive processes of normal nutrition. It has been supposed that the intestinal bacteria aid in the digestion of cellulose which they are undoubtedly able to decompose fermentatively. This argument loses much of its force if it be true, as lately maintained by Bergmann, that most of the cellulose eaten by herbivora is provided with intracellular enzymes capable of decomposing cellulose.

The real significance of the normal intestinal flora probably lies, not in any immediate relation to processes of digestion but in a wholly different direction. It is impossible to avoid the entrance of bacteria into the digestive tract. The obligate bacteria (for example, *B. lactis aerogenes, B. coli, B. bifidus*) adapt themselves to the secretions of this part of the body and ordinarily hold their own against new-comers. By virtue of their adaptation, they are not ordinarily harmful to their host, but, on the contrary, they are, under some circumstances, capable of doing service by giving rise to conditions that discourage the growth of many harmless and harmful species which man can not readily exclude from his digestive tract. I believe that the chief significance of the obligate intestinal bacteria lies in their potential capacity for thus checking the development of other types of organisms capable of doing injury.

Speaking of the defensive action of the digestive juices, Dr. Herter said that the normal human organism is provided with more or less efficient methods of defense against bacterial invaders. The acidity of the gastric juice, for instance, checks the growth of many non-sporulating bacteria and is, in a measure, destructive to most varieties. If, however, bacteria are administered in very large numbers, there is a chance that some of them will find their way into the intestine. This is particularly true when microbes are taken into the empty stomach or into a stomach with defective motility which secretes little gastric juice of low acidity. Dr. Herter goes on to say:

A long, largely anaërobic intestinal tract permitting gradual resorption of the contents is a physiologic necessity in order that a loss of water and its detrimental consequences may be spared the organism. The presence in the colon of immense numbers of obligate micro-organisms of the *B. coli* type may be an important defense of the organism in the sense that they hinder the development of that putrefactive decomposition which, if prolonged, is so injurious to the organism as a whole. This adaptation is the most rational explanation of the meaning of the myriads of colon bacilli that inhabit the large intestine. This view is not inconsistent with the conception that under some conditions the colon bacilli multiply to such an extent as to prove harmful through the part they play in promoting fermentation and putrefaction. An alkaline reaction of the medium appears to favor their putrefactive functions if peptones be present.

The influence of reaction on the growth of intestinal anaërobes was studied very carefully by Dr. A. J. Wakeman, who found that the growth of putrefactive anaërobes is favored by neutral reaction and restrained by the presence of acids. This explains the favorable influence of milk (containing lactic acid formers) in controlling putrefactive decomposition in the digestive tract. Dr. Herter has this to say with reference to the aërobic and anaërobic conditions in the digestive tract:

AEROBIC AND ANAEROBIC CONDITIONS IN THE DIGESTIVE TRACT.

There are many conditions which influence the character and extent of bacterial decomposition in the alimentary tract: among them are the chemical character of the food, the solubility of the food in the digestive juices, and the volume and composition of these digestive juices. Intimately intermingled with these factors of food and secretory activity is the influence of aërobic and anaërobic conditions in the digestive tract on the nature of the bacterial activities that occur there. The initiation of putrefactive decomposition in the digestive tract, as elsewhere, depends very largely, though probably not exclusively, on the activities of obligate anaërobes. An important portion of the digestive tract is most of the time under anaërobic conditions.

The facts all point to the correctness of the view that we largely owe the initiation of bacterial proteid cleavage there to the agency of the strict anaërobes, but it does not follow that intestinal putrefaction is carried on through the sole activity of these organisms. The intestine abounds with micro-organisms, which are able to attack albumoses and peptones and to effect the further

* Abstract of the Harvey Society Lecture, delivered at the New York Academy of Medicine, Nov. 3, 1906.

degradation of the proteid molecule, thus entering into a symbiotic action with the strict anaërobes.

The symbiosis of aërobes and anaërobes is a biologic phenomenon of much consequence in determining the distribution of anaërobic bacterial processes in the digestive tract. Without such symbiotic action, the development of strict anaërobes would be confined to those parts of the digestive tract into which oxygen passes rarely, and then only in small amounts. The large intestine is seldom visited by free oxygen, but it is probably usual in man for the small intestine to contain a little air.

It is probably safe to assume that in the mouth the free presence of oxygen constantly acts as a deterrent to anaërobic growth. In spite of this, however, anaërobic life is possible. Caries of the teeth, which was formerly referred to aërobic bacteria, seems clearly the result of the invasive action of anaërobes on the tooth pulp. In removing decomposing food masses by the intelligent use of a tooth brush, one not merely admits air to the anaërobes, but also removes many aërobes, which, through the symbiotic action already mentioned, facilitate the multiplication of the former.

In a stomach which secretes little or no hydrochloric acid and which is sluggish in emptying its contents, the chances for anaërobic development are good, and hence we frequently find under these circumstances that there are evidences of putrefactive decomposition of food that has been unduly retained in the stomach (e. g., production of sulphuretted hydrogen, mercaptan, butyric acid, etc.). On the whole, however, I think one may say that in the course of chronic gastric affections the number of anaërobic micro-organisms in the stomach is seldom great.

Of the conditions of bacterial life in the small intestine, very little is known because of the inaccessibility of the contents of this portion of the digestive tract. However, observations at operation after gunshot wounds and at early autopsies have shown that putrefactive micro-organisms are commonly few in the upper two-thirds of the small intestines. In man there is in the ileum within a foot or two of the colon a marked increase, both in the number of bacteria and of their varieties. Hence we find that the mixed fecal bacteria taken from this level of the lower ileum are capable of inducing putrefactive changes in native proteids and in more simple nitrogen-holding media, even in health, and that anaërobic conditions of bacterial life are exaggerated in pathologic states. We may indeed look on the ileum as the debatable land of digestive territory.

In the large intestine we find the most dense accumulation of bacteria and the best conditions for anaërobic growth. The transition from small to large intestine is in this respect very striking. The anaërobic conditions are well maintained throughout the colon and it is here that we find the greatest numbers of anaërobes and the most pronounced evidence of putrefaction. There is, however, a gradual fall in the number of living bacteria beyond the ileocecal valve, so that in the rectum the numbers of cultivable bacteria are very much less than in the ascending colon. It should be noted, however, that the variety of bacteria in this region is often not so great as in the ileum, although their numbers are in excess.

Dr. Herter then discussed the characters of the bacterial flora of carnivorous and of herbivorous animals and the reducing action of meat. He says that in the case of carnivorous animals living on raw meat there seems little doubt that anaërobic conditions may exist throughout the digestive tract, and that the reducing action of meat in the upper part of the tract may contribute materially to diminish the quantity of oxygen carried into the intestines. Meat which has been cooked slightly still possesses considerable reducing power, and it is not unlikely that there are cases of excessive intestinal putrefaction in man which depend on the excessive activity of anaërobes in which the conditions of anaërobiosis are favored by excessive meat eating.

Attention was also directed to the influence of the epithelial cells lining the digestive tract. Dr. Herter thinks that in cases where there is excessive production and absorption of indol (and of other noxious substances) this epithelium acts as a protective agency to the organism as a whole. Furthermore, the epithelial cells prevent the passage of bacteria from the lumen of the gut into the body tissue.

Evidence is gradually accumulating to show that pathogenic micro-organisms may be present in moderate or even in considerable numbers in the intestinal tract under some conditions without giving rise to clinical manifestations of deranged function. To quote Dr. Herter:

It is likely that in all these cases the pathogenic organisms in question are held in check by other bacteria present in the digestive tract or by the bacteria and the intestinal secretions, so that they are unable to multiply in a significant manner or to gain entry into the cells of the mucous membranes. It seems not unreasonable to suppose that this restraint may be overcome by errors in diet, depressed general conditions, or by alterations in the secretions of the digestive tract, and that thus definite infection by the hemiparasitic bacteria that are present becomes possible. The considerations just mentioned as applying to these bacteria probably hold equally true of the more saprophytic forms concerned in intestinal putrefaction.

A variety of conditions may be presumed so to favor the development of these anaërobes that their products, instead of being formed in such small amounts as to be harmless, begin to exert a detrimental effect on the organism. Especially important are influences which alter the character of the secretions in the large intestines or bring there unusually large quantities of partly digested proteid food. In certain conditions of the digestive tract an excessive or even a moderate meal of proteid food will precipitate an intoxication or a seizure of vomiting or diarrhea. There are cases classed as ptomain poisoning in which the digestive tract rather than the food is responsible for the observed disorders.

It is evident that, while at all periods of life the human digestive tract contains numerous micro-organisms, the biologic characters of these organisms are not the same at all ages. In this may be found a cause for the different types and decomposition in the digestive tract. For instance, in the digestive tract of a nursing infant there is found a relatively simple bacterial flora, which should be a matter of interest to those who wish to obtain an insight into the physiology of digestion. The great majority of the bacteria are Gram-positive.

Among these may be mentioned *B. bifidus, B. acidophilus, B. aerogenes capsulatus, B. lactis aerogenes,* and *B. putrificus.* As the result of his study of the distribution of bacteria in the intestine of the nursling from autopsies on babies dying in the first six months of life from causes not closely connected with the digestive tract, Dr. Herter presents the following summary:

In the normal nursling the mouth contains few bacteria and these are for the most part derived from the skin and the nipple—*Staphylococcus pyogenes aureus,* bacilli of the *B. coli* group and *B. lactis aerogenes.* In the stomach also the bacteria are few and the bacterioscopic picture shows usually a few positive or negative diplococci or streptococci, or negative coccobacilli, or positive or negative bacilli suggesting the *B. coli* and *B. lactis aerogenes* groups. The normal bacteria of the greater portion of the small intestine are short Gram-negative bacilli of the colon and *lactis aerogenes* groups, mixed sometimes with a few positive and negative coccal forms. In the lower ileum the organisms of the bifidus type appear and at the transition from lower ileum to cecum there is a striking change in the proportions of coli and bifidus types, and the former lose their dominant numerical position. The ascendency of the bifidus type increases in the colon to such an extent that in the rectum this type has the appearance of being present in pure culture.

The bacterial flora of the intestinal tract of the nursling is thus only moderately numerous as regards variety. The bacteria are concentrated in the regions that lie between the lower ileum and the anus, the ileocecal junction presenting most organisms capable of being cultivated and the greatest variety. The comparatively small number of bacteria found in the small intestine has its explanation partly in the small amount of food that lodges there and partly, perhaps, in the bacteriolytic action of the succus entericus, which, though moderate, is appreciable. Wherever particles of transformed casein are found there will bacteria also be abundant, but with the exception of the lower ileum the small intestine does not harbor food-masses to any considerable extent. The epithelial cells are said to contain an antitryptic ferment and this passes to some extent into the succus entericus, where it is perhaps capable of exerting a restraining influence on that peptonization of proteid which is the first essential step toward putrefactive decomposition.

A satisfactory study of the products of the mixed fecal flora from normal nurslings has not yet been made. One fact, nevertheless, stands out, that on sugar-bouillon containing blood the volatile acid or acids produced give a molecular weight corresponding closely to that for acetic acid. The insignificant amounts of the higher volatile fatty acids points to the absence of considerable numbers of anaërobic putrefactive bacteria. In harmony with this is our observation that the Welch-Nuttal incubation test with rabbits does not produce the gas-liver from putrefactive anaërobes. The mixed fecal flora when grown on plain bouillon make indol, doubtless owing to the multiplication of colon bacilli.

If one makes a comparison of the bacteria of the digestive tract of infants fed on cow's milk with the flora of the digestive tract of breast-fed infants, many points of resemblance and also some typical and important differences are found. In general, the number of bacterial forms present is greater in the case of the bottle-fed infant than in the breast-fed infant, especially when the milk has not been sterilized or pasteurized. When sterilized milk is employed the increase in the number of bacteria in the digestive tract is dependent, at least in part, on the presence of anaërobic bacteria or facultative varieties capable of forming spores. Dr. Herter says that many of the bacterial forms found in the nursling's intestinal tract are also inhabitants of the intestine of bottle-fed infants, although in the case of the latter the organisms of the colon type predominate, so that the microscopic picture is Gram-negative instead of Gram-positive.

The products of decomposition in the intestinal tract of bottle-fed infants are said to be remarkably small in amount, as is the case in nurslings also. The large intestine of a normal bottle-fed infant contains merely a trace of indol or none at all. Only a moderate amount of volatile acid is obtained from the distillate of an acidified watery suspension made from any portion of the contents of the intestinal tract, and, of this, acetic acid forms by far the larger amount. This, Dr. Herter thinks, indicates that such bacterial processes of decomposition as occur within the intestinal tract are of a fermentative rather than a putrefactive nature.

After infancy the more varied diet increases the opportunities for the entering of many kinds of bacteria into the digestive tract, and, although individual variations are considerable, Dr. Herter describes conditions that are fairly typical for persons in good health and favorable environments. He says:

The Bacterial Conditions After Infancy.—During childhood and adolescence one sees a slow transition from the conditions of infancy to those of adult life. *B. bifidus,* although present, is much less numerous, and other types are more numerous. Still the numbers of putrefactive anaërobes are small and putrefactive processes in the intestine are not active. This is shown by the presence of only a very small amount of indol and phenol in the feces, and, in the urine, by low ethereal sulphates and the absence or small amount of indican and phenol. The reaction with dimethylamidobenzaldehyd ($(CH_3)_2N.C_6H_4.CHO$) is slight or moderate—often so slight that its existence is questionable. During temporary derangements of digestion there may be an increase of the ethereal sulphates or indican, but this is very transitory.

Toward adult life great differences exist in the habits of different persons, and these are in a degree reflected in the nature of the bacterial processes of the digestive tract. In adult life the individual experiences new responsibilities, new dangers, an enhanced emotional life and often a larger proportion of indoor life and more sedentary habits. The dietary is apt to undergo an alteration in the direction of increased and frequently injudicious liberty and the use of tea and coffee. Also the use of tobacco and alcoholic drinks is either increased or begun. Sooner or later these things lead to slight derangements of digestion which manifest themselves clinically. One occasionally meets with persons of unusually robust physical and mental health in whom the bacterial conditions of adolescence persist until the fiftieth year, or longer. A large proportion of persons,

however, by the time they reach the age of 50 present different physical conditions, although they are in no sense in a state of invalidism, but work hard and most of the time feel well. While in such persons the fecal flora shows nothing striking, it is usually not difficult to demonstrate that the number of putrefactive anaërobes in the intestine is larger than in healthy adolescents. In short, we find in middle life a large number of persons whose health is good or fair, in whom the putrefactive processes are distinctly more active than is the case with most younger persons of normal health.

These persons, though in good health, are not robust. A period of sustained hard work is followed by considerable mental and physical fatigue. Dining out and the use of alcoholic drinks are indulgences quickly followed by unpleasant consequences. Exercise out of doors becomes more and more a necessity. The individual is conscious that it requires careful living to keep him in a condition compatible with the performance of his duties.

The main difference between the putrefactive conditions found at 50 and at 70 is that at the latter period they are a little more marked in their intensity and affect a much larger proportion of the population. The subjects in question at this later period of life are not ill, but in order to keep fairly well have to be very careful as to their habits of living. They are moderately anemic and easily develop slight disorders of digestion. They weigh less than formerly and, though they may still be well nourished in appearance, are conscious of losing strength from year to year. They are undergoing what is usually regarded as normal involution. It may be confidently asserted that the onset of senility may be distinctly accelerated through the development of intestinal infection in which the putrefactive anaërobes are prominently represented. I have observed this in cases where it has appeared certain that other toxic causes of premature senility could be excluded.

The methods of investigation employed by Dr. Herter in the pursuit of knowledge in connection with this subject are described at length. They relate in part to the study of the morphologic and cultural characteristics of the bacteria found in the digestive tract under different conditions, but in the main they deal with the products of the life activities of these bacteria when grown on different culture medium. Dr. Herter discusses the study of a microscopic field with the aid of the Gram stain, the isolation and identification of individual bacteria by means of plate cultures, the study of anaërobiosis by means of cultures and by animal experiments, the study of gas production, and such other procedures as are commonly carried out in the identification of bacteria. To quote Dr. Herter:

The appearance of the Gram-stained flora gives, as a rule, but not always, an indication of the dominant flora in the lower part of the intestine. One can not rely on it alone, but in connection with data derived from other methods it helps us to form a conception of the bacterial types present. In addition to the study of the mixed fecal flora in the fermentation tubes, as a routine procedure, four flasks, each containing about 500 c.c. of medium, have been inoculated with a suspension of the mixed fecal flora and incubated seven days. The media employed have been peptone-bouillon, peptone-bouillon with calcium carbonate, sugar-bouillon and sugar-bouillon with calcium carbonate. Under the conditions prevailing in these flasks a large part of the growth has been anaërobic and a high degree of anaërobiosis has been maintained, owing in part to the formation of reducing products, such as hydrogen, incidental to the fermentative and putrefactive cleavages. It has been found in general that the anaërobes grow more abundantly in the flasks which were kept neutral by the presence of calcium carbonate. The chemical examination of the seven days' flasks has included two different series of procedures. The peptone-bouillon flasks were examined for hydrogen sulphid, methyl mercaptan, volatile fatty acids, ammonia, indol, skatol, phenol, alcohol and acetone. Quantitative determinations have regularly been made in the case of the volatile fatty acids, ammonia, indol, skatol and phenol. In the sugar-bouillon flasks the contents have been examined for alcohol and acetone, volatile fatty acids and the non-volatile organic acids. The molecular weights of the barium salts of the volatile fatty acids have regularly been determined. An interesting observation has been made that in the flasks containing calcium carbonate the molecular weights obtained for the volatile fatty acids have nearly always been somewhat higher than in the case of the molecular weights obtained from the volatile fatty acids of the sugar-bouillon flasks. This fact confirms the evidence of the microscopic fields and shows the greater abundance of the putrefactive anaërobes in the neutral flasks than in the sugar-containing flasks that are allowed to become acid. Methyl mercaptan has been determined by the isatin-sulphuric acid method. I have published previously the method used for the determination of indol and skatol and their separation by means of β-naphthaquinone-sodium-monosulphonate and the dimethylamidobenzaldehyd reaction. The chemical methods of studying the feces and urine are those that are fully described in the text-books relating to these subjects. To these known methods has been added the color reaction of the filtered watery extract of the feces with Ehrlich's aldehyd and also the urinary reaction with this reagent.

The chemical products of intestinal fermentation and putrefaction, the individual susceptibilities as possible factors in determining clinical types of putrefaction, the types of chronic excessive intestinal putrefaction, and, finally, the therapeutic considerations which arise as the natural result of Dr. Herter's very careful study, are discussed by him as follows:

THE CHEMICAL PRODUCTS OF INTESTINAL FERMENTATION AND PUTREFACTION.

I shall use the word fermentation to designate the decomposition of carbohydrate and fatty substances and the word putrefaction to apply to the cleavages of proteid and allied substances. The products of putrefaction include the substances containing sulphur or nitrogen or both sulphur and nitrogen. The fermentative and putrefactive processes overlap in the sense that they furnish some products in common, such as carbon dioxid and volatile fatty acids, and, furthermore, they are linked by the fact that excessive fermentation in the digestive tract nearly always leads to excessive putrefaction. Of the products of fermentation the carbon dioxid acts mainly as a cause of flatulence in the stomach or small intestine. The acids formed—chiefly acetic and lactic—are irritants and may be exciters of vomiting and diarrhea. When in excess the acids may be excreted, unburned, and thus withdraw alkali from the tissues.

It is possible that a mild degree of acidosis may thus result from fermentative processes in the intestine.

It is now well established that various molds and bacteria are capable of acting on media containing sugar in such a manner as to give rise to the production of oxalic acid. Dr. Helen Baldwin has shown that by prolonged feeding of dogs with large amounts of sugar a mucous gastritis is incited and that oxalic acid is present in the stomach and urine. It was also found that in media containing beef extract and sugar, oxalic acid was produced after inoculations with the contents of the stomachs of persons showing marked grades of oxaluria. Although gastric fermentation is not the chief source of oxalic acid in the body, it is possible that it may have an influence in causing the condition known as oxaluria.

When we turn to the consideration of the nitrogen-holding and sulphur-holding products of putrefactive cleavage, the scantiness of our knowledge comes into view with almost discouraging clearness. That putrefactive processes are attended by the formation of bases such as ammonia, amines, diamines (such as putrescin and cadaverin), cholin, neurin, sulphur compounds and various aromatic bodies, has been known many years and something has been learned, though by no means enough, about the media and the bacteria which determine the presence and proportions of these substances. When, however, we ask ourselves what we can safely say of the conditions under which such substances arise in the human intestines and of their pathologic effects, we are able to give in most instances only very inadequate answers.

Basic Substances.—Although ammonia is regularly formed in the course of putrefaction in the intestines, it is probably present in too small quantities to be toxic. The organism is well adapted to care for moderate quantities of ammonia which, as is well known, is united with carbon dioxid in the liver and elsewhere to form urea. It is possible, however, that ammonium butyrate may act as a local irritant in the intestine. Likewise we know nothing of any toxic action from methylamine or other alkyl amines. Cholin and, perhaps, neurin have been found in the intestinal tract in experiments on animals, but we lack positive evidence that they can under these conditions exercise their poisonous effects on the organism.

Putrescin and Cadaverin.—Although the study of the conditions under which putrescin and cadaverin are formed in the intestinal tract is of much biologic interest, there is at present little evidence that these diamines are ever formed in sufficient quantities in the human intestine to constitute in themselves factors in the production of states of intoxication. The association with cystinuria is a striking fact, and the further investigation of this condition will doubtless give us the explanation of the relationship between the production of diamines and the formation of cystin, if, indeed, there be any necessary relation.

Sulphur Compounds.—The sulphur compounds resulting from putrefactive decomposition in the intestines have received little attention from the standpoint of their pharmacologic action. It is very difficult at present to form a just estimate of their importance in intestinal intoxications.

There is reason for thinking that the production of hydrogen sulphid in the digestive tract is of more importance to the organism than the formation of mercaptan. This gas is regularly formed in the intestines and its presence can be demonstrated in freshly voided feces. The mixed fecal flora, both in health and disease, produce hydrogen sulphid in cultures containing partially hydrolyzed proteids (bouillon). In health probably hydrogen sulphid is formed only in the colon and perhaps in the lower part of the ileum. There are, however, pathologic conditions in which it occurs in the stomach. It is not necessary to assume the presence of a pathogenic organism in these cases, as it is well known that *B. lactis aerogenes* and colon bacilli liberate it when growing in certain media. In marantic children I have found organisms capable of producing hydrogen sulphid in pepton-bouillon in the stomach and the first part of the small intestine; while in children dying of bronchopneumonia, such results were obtained only from the flora of the lower ileum and colon.

We have at present very little satisfactory knowledge of the influence of hydrogen sulphid on the organism in cases where the gas is liberated in the intestine. Senator and others have described poisoning by this gas. Among the symptoms which have been met with in such cases there have been prominent those pointing to disordered function of the central nervous system, including headache, dizziness, delirium, mental depression, drowsiness, stupor and collapse. Somewhat similar manifestations have been observed in experimental poisoning by hydrogen sulphid in animals and men.

AROMATIC PRODUCTS OF PUTREFACTIVE DECOMPOSITION.

Phenol and Cresol.—In some pathologic conditions attended by excessive putrefaction in the intestine these substances are found in the intestinal contents in amounts considerably above the normal amount, which is always small. But one never, however, finds them in large quantities—never so much, for example, as in the case of indol. Notwithstanding this, the quantity excreted in twenty-four hours in the urine as phenol potassium sulphate may be fairly high owing to the fact that phenols are produced in the organism in the course of the metabolism of normal cells. In certain putrefactive cases I have found these substances in considerably greater amounts in the urine, but even here, however, it does not appear that the phenols can be regarded as important toxic agents, although it is likely that the continued absorption of moderate quantities from the intestine over a long period of time may harm the cells of the liver and other structures concerned with the pairing of phenol and sulphuric acid, especially if the cell protoplasm of the liver has previously been somewhat damaged.

Skatol.—This substance is formed in very small quantities from time to time in some normal persons and very abundantly in some persons suffering from excessive intestinal putrefaction. In persons with marked intestinal or nervous disorders I have occasionally found in the feces as much as 8 or 10 mg. of skatol in 100 gm. of feces. Usually the amount is much less than that of indol, but this rule is not invariable. Like indol, it is derived from tryptophan, but what are the conditions, bacterial and other, that determine its formation rather than the formation of indol, we do not at present know. I have found that the administration of skatol to monkeys by the mouth and by subcutaneous injections has been followed by the appearance of a substance in the urine giving the Ehrlich dimethylamidobenzaldehyd reaction and that the administration of 0.1 gm. of skatol to man has heightened the Ehrlich reaction in the urine. In most cases in which the feces contain considerable skatol the urine gives a strong reaction with Ehrlich

aldehyd. Skatol behaves in the organism much like indol as respects its toxic properties, but it is somewhat less poisonous. There is seldom reason to attribute to it any definite pathologic effects. It is possible, however, that, like phenol, it may, under some conditions, play an auxiliary part with other substances in damaging living cells.

Indol.—Indol is not a product of tryptic digestion of proteids and probably can not be formed in the course of physiologic processes without the intervention of organized ferments such as bacteria. The indol produced in the intestine is, like skatol, derived from tryptophan. In early life the production of indol in the intestines is in general very slight and there are some older persons also who, even while suffering from disorders of digestion, do not form indol. On the other hand, the production of considerable quantities of indol in the large intestine is a feature of many instances of intestinal putrefaction and in some cases the quantity formed is large. That indol may be absorbed in considerable amounts is shown by the appearance of large quantities of indican in the urine of persons in whom the intestine contains large amounts of indol.

While it is true that in general the aromatic compounds are resistent to oxidation, it is probable that whenever indol is introduced in moderate quantities into the organism of carnivorous and omniverous animals, a portion of it is burned completely in the body. It may be regarded as settled that the liver, muscles, intestinal epithelium and other cells normally exert a protective action to the nervous system in screening it from the effects of an injurious percentage of indol in the blood, by the ability of these structures to quickly bind any indol which comes to them. The differences in the observed toxic effects are probably dependent on inequalities in different persons in their ability to oxidize indol and to pair it with sulphuric acid. As to the effects of absorbed indol on the organism in disease, it is necessary to speak with caution, since there is no evidence that indol is the only toxic substance absorbed in those cases where it enters the organism from the gut.

The idea that the circulation of free indol in the blood may act in a depressing manner on the muscular structures is suggested by the rapid muscular fatigue which comes on in some persons who have suffered for a long period of time from a high grade of indicanuria. In some cases of excessive intestinal putrefaction in childhood associated with retardation in growth and abdominal distension there is clearly a poisoning of the muscular system. These children show signs of fatigue very rapidly, and in some cases where the condition has come on in early life they are slow in learning to walk. Their urine contains not only a large amount of indican, but a considerable quantity of phenol. It is likely that phenol in these cases plays a part in the muscular depression. Perhaps in some instances it is as much a factor in inducing fatigue as is indol.

INDIVIDUAL SUSCEPTIBILITIES AS POSSIBLE FACTORS IN DETERMINING CLINICAL TYPES.

Instances are many in which clinical experience has made it clear that two persons of approximately the same weight react differently to the same drug and do so regularly. Of individual human susceptibilities and reactions to the action of enterogenous poisons almost nothing is now known. Nevertheless, one can not fail to recognize the possibility that such individual susceptibilities and reactions may play an important part in determining the clinical manifestations of intoxications. It is well known to clinicians that there are some persons who promptly develop a widespread urticaria after indulgence in certain foods or drinks, such as shell-fish or strawberries or champagne. In some persons the indulgence in a single glass of champagne is followed within twenty-four hours by manifestations of gout. In others champagne causes headache and the excretion of increased amounts of uric acid.

The explanation of these different effects is to be sought in the individual cellular reaction of the patient rather than in the poison. There are probably many similar examples of individual susceptibility, but when we come to study the question in relation to processes found in the digestive tract we can not make close comparisons between different persons because we can not say what substances are being absorbed. We may know that a certain group of patients are alike in having intense indicanuria, but we can not say that the intoxications may not be different in these cases owing to differences with respect to the absorption of other substances than indol. Among half a dozen persons suffering from extreme indicanuria one suffers from headache, sometimes migraine-like; another is prone to lumbago; another perhaps has epileptic seizures; another has mental depression; another progressive muscular atrophy, and still another suffers from cyclic vomiting. There is good reason for suspecting that very similar bacterial processes in the digestive tract lead in one case mainly to digestive disturbances and in others, owing to a lesser sensitiveness in the digestive tract itself, to better absorption of poisons and the development of more remote consequences, such as acute arthritis, anemia or nervous disorders. While it is possible that these very different manifestations are always connected with different and perhaps specifically different types of gastroenteric infection and intoxication, the possibility is not excluded that even such very different derangements may have much in common in their etiology. That the mental and emotional peculiarities of individuals have a large part in fixing the type of nervous reactions that occur in consequence of intoxications has become apparent to careful students of pathologic conditions.

TYPES OF CHRONIC EXCESSIVE INTESTINAL PUTREFACTION.

The variations in the clinical manifestations and pathologic accompaniments of chronic excessive intestinal putrefaction suggest that the etiologic conditions vary in different patients. The three types that I would suggest are:

1. The *Indolic Type* of chronic excessive intestinal putrefaction. This is marked by striking indicanuria and probably is due to members of the *B. coli* group.

2. The *Saccharo-Butyric Type* of chronic excessive intestinal putrefaction, which seems to be initiated chiefly by the anaërobic forms. In its simplest examples there is very little indol in the gut.

3. A *Combined Type,* or cases combining the characteristics of Groups 1 and 2.

Indolic Type of Chronic Excessive Intestinal Putrefaction.—In these cases the members of the *B. coli* group form indol in considerable quanties and they probably invade the small intestine in large numbers. The bacterial cleavages seem largely to replace normal tryptic digestion.

Provisionally we may classify here that type of chronic intestinal indigestion found in marantic chil-

dren with large abdomens. In the treatment of these children much patience is necessary. At first their digestive processes must be improved. Carbohydrates should be greatly restricted and should be given as rice or Huntley and Palmer biscuits. The milk may be peptonized to promote its earlier absorption. Chicken, beef and mutton are permissible, but they should be finely divided. In a child 5 or 6 years old it may be advisable to give only two meals a day. Considerable benefit seems to follow daily irrigation of the colon, which facilitates the removal of the putrefactive products before they are absorbed. The children should exercise, but should be spared fatigue. They should rest much. Because they stand cold badly, they do best in a mild climate during the winter. Improvement may be possible after several years of rigid régime. The retarded growth, however, is evident even at puberty. Some of these patients seem always susceptible to intestinal disorders, and may never become strikingly robust.

The Saccharo-Butyric Type of Chronic Excessive Intestinal Putrefaction.—In this type the seat of the putrefactive process is the large intestine and lower ileum. It is due to the activity of the strictly anaërobic butyric acid producing bacteria. Although our study is not yet exhausted it may confidently be stated that in many cases *B. aerogenes capsulatus* is largely responsible. With this form may be associated *B. putrificus* and possibly sometimes the bacillus of malignant edema, although often these forms are not found in cultures on any of the ordinary media.

The abundance of putrefactive anaërobes, especially of *B. aerogenes capsulatus,* gives a peculiar character to the intestinal contents. The organisms attack carbohydrates and proteids vigorously and butyric acid is formed from both, together at times with propionic, caproic or valeric acid. These acids are largely responsible for the odor of the stools. From proteids, besides these acids, hydrogen, carbon dioxid and perhaps methane are formed. As a consequence the feces have a low specific gravity and often a decidedly light color. The presence of hydrogen leads to the extensive reduction of bilirubin and other pigments. The Schmidt test with mercury bichlorid gives a strong pink color. The stools have an acid reaction, although the acids are neutralized in part by ammonia and other bases formed in the process of putrefaction. It is probable that the ammonium butyrate acts as an irritant to the gut, causing soft stools or diarrhea. Indol is absent or present in small amounts. Phenol occasionally is found in slight excess. In the urine the ethereal sulphates at times are excessive, although the reason for this is not clear. Mercaptan may be present in the feces as a trace; it also is found in cultures by means of the isatin-sulphuric-acid test. It has been noted that as the patient improves the mercaptan becomes less or disappears, but the explanation of this phenomenon is at present unknown.

In nearly all adults the *B. aerogenes capsulatus* is present in the intestines in small numbers. It is possible that this organism is responsible for repeated slight attacks of intestinal putrefaction, although it may not in these mild cases lessen the duration of life. In some persons in whom a high grade of putrefaction is present, a condition of actual invalidism may be induced and life may be definitely shortened as a consequence of the intoxication.

The presence of ammonium butyrate may give rise to irritation of the intestine and this may be associated with an excessive desquamation of the epithelium, not only in the intestine, but in the mouth and stomach as well. We have evidence of this in the presence of a large number of nuclei in the feces, and it is well recognized that excessive desquamation of the lingual epithelium is associated with digestive disorders. The patients suffer from flatulence. They tolerate carbohydrates and acids badly, and are very liable to attacks of diarrhea after a meal of carbohydrates. Acids may be formed in the mouths of these patients through the influence of anaërobes. This adds to the irritability of the intestine. It is possible that in advanced cases the *B. aerogenes capsulatus* may invade the small intestine and there find sugar from which to form butyric acid, etc. After the carbohydrates are thus exhausted, the anaërobic forms in the large intestine set up putrefactive processes in the proteids which exist there.

It is also noteworthy that many patients who suffer from severe intestinal putrefaction are distinctly anemic. The first change in the blood seems to be a decrease in its volume; then the hemoglobin falls somewhat and finally the cells themselves are reduced in number. The grade of anemia varies extremely, from a moderate secondary anemia to the most serious grades of the progressive pernicious form.

The Combined Indolic and Saccharo-Butyric Type of Chronic Excessive Intestinal Putrefaction.—Examples of this type of intestinal putrefaction are common. There are many putrefactive anaërobes in the gut, and also a persistent and well-marked indicanuria, which is but slightly influenced by diet. The nervous symptoms are relatively prominent and appear early. They are emotional irritability and periods of mental depression; muscular or mental activity soon induces a striking fatigue. Later the blood disturbances may appear. Although these patients have intervals of improvement that continue for months, on the whole the general tendency is downward. They become less robust and recuperate less promptly from every succeeding attack. They may run along for ten or fifteen years in a weak condition, with periods of slow improvement, and finally may present the picture of a pernicious anemia. In others the nervous symptoms increase and the patients may need treatment in a sanitarium or in an asylum for the victims of melancholia.

These various manifestations in different individuals may represent merely a differing reaction to the same poison. Whether the nervous system or the blood shall bear the brunt of the attack is determined by the relative vulnerability of these tissues in that particular individual. It is noticed also that under treatment one group of symptoms may improve quite independently of the other.

There is a more rapid advance of invalidism than is the case of either type (1) or type (2) alone. The atrophy of the fat and muscle and the blood changes are present, and perhaps also there are chronic parenchymatous changes in the kidney and liver as a result of the constant poisonous action.

THERAPEUTIC CONSIDERATIONS.

The difficulties that beset our efforts to control and modify excessive intestinal putrefaction are obvious. Although the cases arrange themselves in groups, everyone presents certain points of difference. Our experience is so incomplete that as yet our efforts are more or less experimental. Notwithstanding this, one may lay down rules for partial guidance that are based on certain principles, but a careful regard for individual traits is imperative.

The mild cases often show a rapid improvement and lose the evidences of putrefaction. The patient feels well, yet he can hardly be called normal, because he has deficient reserve power and will easily relapse to his former condition after an indiscretion in eating or excessive fatigue or worry. The long-standing cases improve slowly at best. The chemical products of putrefaction may be reduced in amount, but the symptoms often persist, and even under most favorable circumstances the patient is liable to frequent and protracted exacerbations.

The following principles must be regarded in treating all the three types of putrefaction: (1) Avoidance of continued reinfection that follows the ingestion of putrefactive bacteria with the food; (2) the promotion of prompt digestion and rapid absorption from the small intestine; (3) the reduction of the number of putrefactive anaërobes in the ileum and colon.

1. To avoid infection and reinfection the mouth must receive scrupulous care. Carious teeth and gingivitis must be treated carefully by the intelligent use of the tooth brush and of washes containing peroxid of hydrogen. In conditions of gastric atony a process of putrefaction begins in the stomach that normally starts in the colon. Gastric fermentation and putrefaction are controlled by lavage every day, perhaps best in the morning. The reduction of the number of bacteria here leads to lessened damage to the bowel at lower levels.

In the preparation of food ordinary cleanliness is very effective. It is probably better to use cooked food as much as possible. Fruit is not above suspicion, for Dr. Rettger has determined that the bacillus of malignant edema is commonly present on banana peel. This suggests the advisability of peeling all fruit that is eaten. Milk always contains a large number of bacteria and often some of the putrefactive forms, especially *B. putrificus*. The lactic acid formers abound, but their action is rather beneficial in that they antagonize other and harmful forms. Sterilization of the milk is of little value. Pasteurization or the ordinary boiling kills the lactic acid formers, but does not harm the spores of the putrefactive organisms. Cheese, except fresh home-made cheese, contains many putrefactive forms, and is best avoided, particularly inasmuch as many of these patients lack the protective action of the normal amount of hydrochloric acid in the stomach.

2. With rapid digestion and prompt absorption little pabulum for the putrefactive organisms reaches the colon. These processes are facilitated by measures that improve the secretory and motor functions of the stomach. Chief among these is proper mastication, which largely determines the ability of the body to utilize food. When large masses of meat are swallowed, they commonly appear in the feces. Comminution of food outside the body is not an adequate substitute, for the patient then loses the emotional stimulus to gastric secretion and also the digestive action of the saliva itself. The administration of hydrochloric acid often helps for a time, but in long-standing cases, especially those of the combined indolic and saccharo-butyric types, it is of little use. Ferments, such as pepsin and pancreatin, are of doubtful value, although they can not be said to be always useless. Diastase gives better results, as it enables the patient to utilize more extensively the carbohydrates of the food. If, as often happens, the stomach is irritable, it is advisable to give small meals and to administer flaxseed or other demulcent before eating. The best pancreatic stimuli, aside from the quality of the chyme, are cheerful emotional accompaniments of eating, and rest, physical, mental and sexual. Prompt absorption is promoted by restricting the amount of food, especially of proteid food. Meat should rarely be eaten more than once a day.

3. To reduce the number of putrefactive organisms in the colon, one turns naturally to intestinal antiseptics. While these drugs may act efficiently on bacteria in the stomach, evidence of their continued action in the intestine is variable. Perhaps the salicylates are most likely to check fermentation and putrefaction in the stomach and small intestine. It is conceivable that certain oxidizing substances which are slowly dissociated, such as manganese bioxid, may reach the colon in time to liberate their oxygen there and thus, in part at least, remove the anaërobic conditions that obtain in this part of the intestine.

The use of laxatives may be followed by temporary benefit, in that they lessen absorption from the gut, as is shown by a decrease of the ethereal sulphates in the urine, after their use. They must, however, be given with caution, lest they increase the irritability of the bowel and lead to diarrhea and loss of strength. On the whole, they are useful in acute and subacute cases only.

There are certain very tempting methods which aim to substitute harmless bacteria for the putrefactive organisms, but more evidence is needed as to the value of this procedure. It is a common practice to introduce lactic acid formers in kumys and kefir and also in bacilac, a fermented milk introduced by Metchnikoff, which is free from yeasts. Irrigation of the colon two or three times a week is often followed by a decrease of the ethereal sulphates in the urine and by relief from symptoms, including both the mental symptoms and the anemia. This procedure is more efficacious in the saccharo-butyric and combined types of putrefaction.

PROGNOSIS.

In considering the prognosis in these patients, the duration of the condition is as important as its intensity. Better results are obtained in those cases induced by gross errors of life, the correction of which is followed by improvement or complete recovery. In a highly neurotic person the outlook is less hopeful. A protracted rest for two or three years, with careful attention to the principles of treatment laid down, offers the best hope of health.

THE RELATION OF DISEASE OF THE NASAL ACCESSORY SINUSES TO DISEASE OF THE EYES.*

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That the nose and its pathology have a direct influence on the health and function of the eyes has long been admitted, and the more obvious and striking forms of interdependent diseases have for a long period been recognized and treated.

It is unnecessary to mention the ordinary examples of associated disease. I wish to call your attention to a practically unrecognized condition. The symptoms of this condition are purely ocular. The patient never has a reason to suspect a nasal origin, and, as use of the eyes almost invariably increases the headache of this condition, he consults an oculist for relief. Another

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

reason for believing that the eyes are at fault is that correct glasses relieve for a time all or the greater part of the symptoms. This may be explained by the lessened congestion of the ciliary body resulting from a relief of eyestrain, however small in amount. And, as congestion is the basis of this condition, even a slight reduction of its total amount will, for a time, give relief from the more prominent eye symptoms.

The first point which attracted my attention to the possibility of involvement of the neighboring sinuses was that this particular class of headaches was usually unilateral, or, if bilateral, the pain was greater about one or the other eye. The nose, however, shows no distinct anatomic or pathologic condition to account for the one-sided headache, except on very close examination with suprarenalin and cocain, when the middle turbinal will be seen to be closely applied in its anterior third to the lateral nasal wall, or even may be found sufficiently boggy or hypertrophied to resist shrinkage by these agents. The literature, especially the German, furnishes abundant evidence of the close relation existing between these sinuses and the orbital contents. These cases, however, are all of the suppurative type of sinuitis, and a nasal examination reveals evidence of pus in one or more of the locations characteristic of sinus infection, while in the class of cases here presented no pus could be detected in the nose at any time except in a few cases which showed mucopus after probing and irrigating the frontal sinus.

The frontal sinus and the ethmoid cells opening into the infundibulum are the sinuses chiefly involved. Pihl[1] reports a case of retrobulbar neuritis from chronic antrum suppuration, but here again the presence of pus coming from the antrum should be easily demonstrated, and it is almost impossible for the nonsuppurative condition here described to occur in the antrum of Highmore, because, from its position at the lower end of the hiatus semilunaris, the ostium is never blocked by a congested middle turbinal or, if blocked at all, it is often reopened by the varying turgescence of the turbinal.

The clinical picture presented in this condition is as follows: The origin of the trouble dates back to an attack of so-called grippe or to a very severe cold. The patient has had headaches more or less severe and always unilateral when they first appear, although often they become general after an hour or more. The patient usually speaks of having neuralgia. The pain occurs during sleep as well as in the daytime, frequently beginning and ending with some regularity at a given hour each day. During the existence of the pain there is often unilateral lachrymation, swelling of upper eyelid and tenderness on pressure at the inner orbital angle or over the anterior wall and floor of the frontal sinus as compared with pressure applied to the same areas on the opposite side. The patient experiences intervals of complete relief, during which the eyes may be used for near work indefinitely. During attacks, however, use of the eyes is almost impossible, as it intensifies the symptoms markedly and may even be accompanied by blurring and mixing of print. Insufficiency of both accommodation and convergence is usually observed and there may be a reduction of distant vision.

On stooping over to pick up an article from the floor the patient experiences marked increase in pain and often becomes dizzy on resuming the erect position. While stooping he is usually able to put his finger on the area of greatest pain and describes the sensation as one of increasing pressure as though the painful area was being pushed slowly forward by a force from behind. The circulatory disturbances of the menstrual period aggravate the condition and each cold brings it on. Jarring, as in riding on a train, is almost unbearable during an attack. The patient's ability to think clearly is disturbed. The pain is only partially controllable by opiates. Excess in eating or drinking alcoholic beverages aggravates or even may bring on attacks.

As a rule, no history of nasal disease is obtainable. In fact, patients often object to a nasal examination as a waste of time and a useless procedure, being perfectly sure that the trouble is entirely in the eyes. Close examination will reveal a swollen boggy turbinal or one which is anatomically so close to the lateral nasal wall as to press on the hiatus semilunaris and thus interfere with free interchange of air and free exit of normal secretions from the frontal and anterior ethmoidal cells.

If a patient gives a history of having experienced any of the above symptoms he should be seen during an attack and an attempt made to relieve the acute symptoms with suprarenalin and cocain applied about the middle turbinal and into the infundibulum. If an attack can be relieved thus, the hypertrophied anterior end of the middle turbinal should be resected to give free access to the infundibulum and hiatus semilunaris.

The etiology of this condition depends on the anatomic relation of the middle turbinal to the hiatus semilunaris and the infundibulum. The air in the frontal and anterior ethmoidal cells is imprisoned there by pressure of the middle turbinal against the lateral nasal wall, the turgescent tissues filling in the hiatus semilunaris and effectually blocking it. The lining mucous membrane of the sinuses absorbs the oxygen in the imprisoned air and thus creates a vacuum. This absorption results in negative pressure and consequent swelling of the lining membrane with increased blood supply to this region. Stasis, to a greater or less degree, results and may be shown by swelling of the upper eyelid. Pressure of the congested tissues on the contained nerve endings, together with this stasis, produces the symptoms and results in reflex vasomotor disturbances in the circulation of the neighboring structures. Robertson[2] advances a similar theory. Ewing and Sluder[3] described a similar condition which Sluder ascribed to an abnormal approximation of the uncinate process of the ethmoid to the bulla of the ethmoid.

I have also seen the specimen in Hajek's collection, to which Sluder refers, and it is easy to understand how such a narrowing of the hiatus might cause this condition by turgescence of its own lining membrane. This must be rare, however, as compared with a pathologic turbinal which possesses infinitely greater possibilities for alternate shrinking and swelling owing to its venous sinuses. Sluder and Ewing offer no explanation of the condition, being satisfied with the statement that there is an intrasinus change of air pressure. The long-recognized otalgia in acute otitis media is analogous in its etiology to this sinus condition. It seems improbable that sufficient stasis could occur throughout the orbital circulation to bring about such severe symptoms by itself alone. The exit of blood from the orbital structures is well provided for by the superior and inferior ophthalmic veins and their communicating branches emptying backward into the cavernous sinus and the ophthalmo-facial vein emptying forward into the facial

1. Pihl: Klin. Monats. f. Augenh., July, 1905.

2. Robertson: THE JOURNAL A. M. A., March 5, 1904.

3. Ewing and Sluder: Trans. Amer. Oph. Society, May 2, 1900.

vein. The ophthalmo-facial vein anastomoses with the above ophthalmic veins, and in case of need the main venous current may flow into the deep veins of the face instead of, as usual, into the cavernous sinus.

This suggests the probability of a further influence which, I think, is to be found in the disturbances of vasomotor control secondary to the irritation of the branches of the fifth nerve lying in the lining membrane of these sinuses. That no direct circulation of infectious material occurs in the orbital vessels is shown by the subsidence of all symptoms in a few minutes in typical cases when patulency of the infundibulum is restored. On the other hand, the arterial supply to these sinuses comes from the ophthalmic artery and the stasis within the sinuses must cause back pressure in the orbital branches of this artery.

Pus or mucopus may or may not be found and when present indicates only that the mucous transuded from the swollen membrane has become infected from the nose. In fact, it is not impossible to imagine that a great many cases of suppurative sinuitis have their origin in a frequently recurring condition such as is here described. The essence of the whole matter is that there is interference with the free interchange of air between the nasal chamber and the accessory sinuses.

In going over the literature of sinus disease I found nothing in reference to the particular type of disease here described. Ziem[4] found disease of the uveal tract to be a frequent result of chronic nasal disease either directly from an accessory sinus by way of the veins and lymphatics or indirectly through the general circulation. Recurring cyclitis and choroiditis and even glaucoma in the early stages are favorably influenced by treatment of the accessory sinus infection. Senile cataract he found to be always accompanied by chronic pus discharge from the nose, and in those cases where the cataract was not mature he obtained increased vision by treatment of the nasal condition, although the lens opacity was unaffected. In empyema of the antrum of Highmore, Ziem[4] frequently found contraction of the visual field. This observation has been confirmed by Berger and by Kuhnt, not only in involvement of the maxillary sinus, but also of the frontal and other accessory sinuses. The fields showed no typical picture, as in one case the field for white would be contracted and that for colors only slightly affected and *vice versa*. In a few cases, in addition to the concentric contraction, a further segment-like contraction was observed in that portion of the field corresponding to the location of the sinus involved.

Grünwald, Engelmann and M. Schmidt found no contraction of the visual fields.

Kuhnt saw several cases in which one or both nostrils were completely closed so that not even by the greatest effort could air pass through them, and there existed no trace of lowered vision, contracted fields, muscular or accommodative asthenopia.

Ziem[4] considers that the functional disturbances of the eyes are due to a passive congestion of the orbit and of the choroid and ciliary body.

Hajek has observed asthenopic symptoms in cases in which the ethmoid cells were involved, as well as in many cases of frontal and maxillary sinus involvement. Grünwald believes that all tissues in the neighborhood of the infected sinus are in an inflammatory condition which is exaggerated by any strain or effort which increases the blood flow to the part, such as an accommodative effort which brings on a sensation of discomfort. This discomfort is relieved by an unconscious relaxation of the accommodation, and the patient experiences a blurring and haziness of the object looked at. This Grünwald terms psychic asthenopia.

Berger, Knies and Zarniko[5] believe the ocular symptoms to be reflex in nature from the sensory nerve ending of the nasal mucosa.

Zarniko[5] holds that to make Ziem's theory of passive congestion tenable the venous channels of the orbit must be relatively small and narrow. I am inclined to agree with Zarniko in this particular, as the reverse is true, the exit of venous blood from the orbit being particularly well provided for in all directions, both backward in the cavernous sinus through the superior and inferior ophthalmic veins and into the deep veins of the face through the ophthalmo-facial which connects with the inferior ophthalmic vein. The main vein, the superior ophthalmic, has no valves except where tributary veins enter, and so its blood may flow in either direction, into the cavernous sinus or through the communicating vein into the inferior ophthalmic and so into the deep veins of the face.

Eversbusch has observed that in sympathetic ophthalmia there is often marked swelling in the nose on the side first affected and that it remains unilateral until the later stages of the process. He now considers this to be an important symptom preceding the prodromal symptoms of involvement of the healthy eye, and has the nose examined in each case where sympathetic ophthalmia might be expected, in order not to wait too long before enucleating; and also in enucleating the first eye he does not suture the conjunctiva nor use a pressure bandage, as he considers a free flow of blood necessary to remove the toxins which remain in the veins of the orbit and nose.

In the exacerbation of iridocyclitis, Eversbusch has many times found an accompanying catarrhal nasal condition or a marked exacerbation of an existing catarrh. In a case of severe iridocyclitis, when the patient refused enucleation and all treatment for two months had failed to influence the condition, Eversbusch had a hypertrophied inferior turbinal removed as a last resort. There was free bleeding for several hours, with the result that the ciliary injection disappeared almost entirely in both eyes, the vitreous haze cleared and the action of the mydriatics, previously unsatisfactory, became complete. This improvement lasted eight or ten days, when a fresh attack both in nose and eyes was relieved by enucleation of the first eye, the second eye healing with full vision.

The treatment of this condition is operative. Having made the diagnosis, the middle turbinal should be cocainized and a notch made at the point of its anterior insertion into the lateral nasal wall, a Myles punch being used. The free end of a wire loop on a Krause snare is now introduced into the notch, where it is held firmly while the canula of the snare is pushed along the under surface of the middle turbinal as far as is considered necessary. Closing the snare gives a clean-cut, smooth-edged wound which rapidly heals. In case the turbinal is not large, much useful tissue may be saved by merely

4. Ziem: Centralbl. f. Augenh., 1887, pp. 131, 358; also Monats. f. Ohrenh., pp. 231, 261, 371, 150; Berlin. klin. Wochft., Nos. 37, 38, 39; Internat. klin. Runschau, p. 324; Deutsche med. Wochft., No. 5; Munch. med. Wochft., No. 16.

5. Zarniko: Die Krankheiten der Nase und des Nasenrachens, Berlin.

punching out a portion along its line of insertion, thus uncovering the hiatus. As a rule, probing and irrigation are unnecessary and when carried out always leave room for doubt as to the part they play in producing the mucopus occasionally found.

HISTORY OF CASES.

CASE 1.—Mrs. E. had pain in left eye in 1892 after "grippe," beginning after rising and continuing until 10 a. m., when it gradually became easier and ceased entirely at noon. The condition improved during the summer, but each winter during the months of January, February and March she has had similar attacks of variable severity.

In February, 1905, she caught cold and pain appeared about left eye, beginning at 9 a. m. and ending at 2 p. m., leaving the eye weak and watery, especially when she tried to read. The ocular condition was normal, but there was tenderness on percussion and pressure about left frontal sinus. No pus was found in nose, but a large septal spur, which pressed against the middle turbinal and kept it constantly irritated and congested, was removed and astringent applications were made to the turbinal. One hour later the pain had disappeared. For three weeks there was a mucopus discharge, slight in amount, seen under the middle turbinal, but the restored drainage banished all symptoms.

CASE 2.—Mrs. C. H. H. six years ago noticed tiring of eyes after an hour's reading. Two or three times weekly she has supraorbital pain, chiefly about right eye. After correction of a compound hypermetropic astigmatism and prism exercises for an exophoria, she ran an unsatisfactory course for a year until last March, when she had a distinct severe neuralgia of right eye and subconjunctival hemorrhage, with soreness of globe and lachrymation. There was no marked tenderness about the frontal sinus, but she had a watery nasal discharge. No pus was found at any time. The middle and inferior turbinate bodies were very boggy and were reduced with difficulty. Thorough shrinking, however, was sufficient to bring relief at once. Local astringent applications entirely cured the condition without any attempt at probing the frontal sinus. Later she was without her glasses for four or five days without a symptom.

CASE 3.—Mrs. S. gives a history of unilateral neuralgic pain in left eye and back of head for past three or four years; it has been worse lately and now is accompanied by lachrymation and some edema of lids of left eye. She thinks she has noticed occasional yellow discharge from nose; on pressure there is tenderness over anterior wall of left frontal sinus and against its floor. No pus was found in nose, but the turbinals were boggy. Patient could read only twenty minutes when lachrymation would begin, worse in left eye. The sinus was probed and irrigated and a small amount of thick pus found, which probably accounted for a bad odor, of which she had occasionally complained. The sinus was irrigated several times and the patient experienced immediate relief. There was some mucopus flow for about one month, according to the patient, but no return of the symptoms.

CASE 4.—W. A. W. four or five years ago had neuralgic pains about left eye. Four weeks ago he had grippe, with excessive nasal discharge. One week later supraorbital pains began about left eye. Pain begins at 2 a. m., and patient has three separate attacks, usually at 2, 5 and 7 a. m. Boggy turbinates on left side were found, but no pus at any time nor local tenderness about sinus. He was given a suprarenalin spray for home use and local astringents were used twice in office with complete relief at once. There has been no recurrence to date. He had been wearing + 0.25 cyl., ax. 90, for each eye, which, as they have given no relief, he has discarded.

CASE 5.—M. W. B. gave a history of catarrh for four years, accompanied by frontal headache, worse about right eye. With each eye under homatropin, refraction was + 0.50 S. ⌒ + 0.25 cyl., ax. 90. No glasses were ordered. Marked tearing and blurred vision occurred after a few minutes' near work. There was some tenderness to pressure about the sinus floor on right side, and the right middle and inferior turbinals were swollen and boggy. No pus was found and shrinking of the middle turbinal gave no relief. Next day the anterior third of this turbinal was resected and the sinus probed. Free flow of pus was followed with complete relief of pain in half an hour. Irrigation of the sinus was attempted with doubtful results. There was a mucopurulent discharge, gradually getting thinner and less in amount for six weeks, since which time there has been none whatever. He had been having his eyes examined occasionally for eight years, with absolutely no relief, but still thought the eyes were at fault and came to me to have them examined again. He now uses them excessively, as he is a senior medical student. There has been no return of symptoms to date.

CASE 6.—Mrs. L. formerly had typical migrain, but attacks have been infrequent for the past three or four years. Two years ago noticed pain in both globes at night and especially in church or theater. Atropin continued for two or three weeks seemed to relieve her. While in the West she had a severe attack of pain about the left eye. The eye became bloodshot, tears streamed from it and reading was impossible, as it increased the pain. Close questioning developed the fact that there was a nasal discharge at the time. Later she had a similar attack in the same eye and obtained no relief from atropin. At this time she remembers that there was a nasal discharge. She has consulted many ophthalmologists of repute, who changed her glasses, exercised her muscles, etc., without permanent relief. Recently she had two attacks like the above, except that she has not observed any nasal discharge whatever. Atropin was useless. Some tenderness of left sinus floor was found during an acute attack last May. She had been instructed to come in at once if an attack occurred, and she came within half an hour of the onset, with the eyelids red and swollen and tears streaming over her cheek. Suprarenalin applied to region of middle turbinal entirely relieved the pain in ten minutes. The anterior third of left middle turbinate was resected without probing sinus, and she has had no recurrence except once, recently, when she had a slight return of the pain, which was permanently relieved by application of 1 per cent. iodin in glycerin to the region of the hiatus. She has discarded her glasses.

CASE 7.—Mrs. E. J. M. five years ago had a severe attack of "grippe," and for several months had photophobia and frontotemporal headaches daily and could not use eyes for near. For past three months pain in frontal and temporal region has been almost constant and caused insomnia and extreme nervousness. Three weeks ago vision began to fail and headaches continued, with soreness in the bony margin of the orbit. Right eye first began to fail, followed by same condition in the left eye. Stooping increases pain and causes vertigo. A cold marked the beginning of present attack, accompanied by occasional thick nasal discharge, greenish in color. Pain persists, but discharge is watery now. Middle turbinals on both sides were hypertrophied and on the left boggy and edematous. No pus was found. After shrinking the left middle turbinal a thin, colorless mucus was seen in the middle meatus. There was extreme tenderness about both frontal sinuses on pressure and percussion. L. V. 20/40 and J. 1; R. V. 20/30 and J. 1. Refraction under homatropin in each eye was + 1.00 S. ⌒ + 0.25 cyl., ax. 180, which was not ordered.

Maddox rod.....crossed diplopia, one degree
Parallax test .....exophoria
Red glass....crossed diplopia with instant fusion

For near there were five degrees of exophoria, as shown by the tangent scale. Resection of the anterior third of her left middle turbinal and probing of her left frontal sinus relieved the condition in one hour's time and has had no headaches since. The right side was similarly treated, as tenderness persisted about the frontal sinus. No pus was found on the right side, but on irrigation portions of a mucous cast were washed out. A large clot of thick yellow pus was washed from the left frontal sinus on the day following the nasal operation. Vision improved by a few letters daily until the fourth day it was 20/15 in each eye. Nose was still discharging one week later, but there was no return of symptoms, and five months later she reported no return.

CASE 8.—H. A. W. two years ago began to have pain in eyes, especially the right eye. Pain is worse since he has worked indoors by artificial light. Pain begins on rising each

morning and continues until noon, with inability to use eyes. In afternoon he uses his eyes indefinitely without symptoms. Has history of nasal catarrh. Right nostril was stuffy from swollen, boggy turbinals. Shrinking turbinals showed mucopus in middle meatus and dropping into throat from right choana. The anterior one-third of his right middle turbinate was resected and mucopus flowed from frontal sinus, with complete relief of all pain and ocular symptoms. His refraction was an irregular compound hypermetropic astigmatism of low degree, and glasses were not prescribed, as the nasal treatment gave complete relief. This case is one of the few in which discharge was actually found, and then only on careful shrinking and probing in the middle meatus.

CASE 9.—H. T., aged 13 years, had headache and pain in eyes, with blurring of print. Her general health was good, except for several indefinite rheumatic attacks. Dr. Frank Allport prescribed + 0.25 S. ⌒ 0.25 cyl., ax. 180 for both eyes for reading. These glasses gave her so much relief that she wore them constantly. For three months patient did well, but began again to have pain in and over eyes. The pain about left eye was then, for the first time, worse than the right. This suggested a nasal examination, and the turbinates of the left nostril were found to be swollen somewhat and to be interfering with breathing. The fact was then brought out that with colds she usually had such headache, which was increased markedly by stooping over and was followed by dizziness. The frontal floors were tender. There was some purulent nasal discharge of slight amount, indicating the last stages of her acute rhinitis, but examination of the sinuses failed to show any discharge. Local astringent treatment cleared the nasal condition and the headache and she now requires glasses only for reading.

CASE 10.—Dr. M. never had headaches until a year ago, although he has worn glasses for twelve years for a mixed astigmatism. A year ago he began to have occasional neuralgia of the left supraorbital region, usually coming on about 12 o'clock. About three months ago he had a very severe attack, which had lasted with varying severity for a week. His nose showed atrophic rhinitis, but there remained sufficient of the middle turbinate on the left side to obstruct the infundibulum.

His pain was markedly increased on stooping, and this fact first drew my attention to his condition, as, during a call on him at his home, I noticed that in hunting for an article in a closet he did not dare bend over on account of the severe pain it caused him, and was obliged to call a servant to help him. A portion of the left middle turbinate at its anterior insertion was punched away and a probe passed into the frontal sinus, resulting in complete cessation of the headache, with no return to date.

In Case 6 of a series reported, Dr. Kate Baldwin[6] attributes the relief from headache and inability to use eyes during attacks to relief of intranasal pressure, following a middle turbinectomy, while the case is to me obviously one of obstruction to the outlets of the frontal and ethmoidal sinuses. The typical symptoms she gives as follows: Marked exophoria, pain since 18 years of age in left temple, eye and teeth, with fullness in left side of nose occurring about 10 a. m., passing away in one or two hours with or without treatment; relief was always accompanied by a small quantity of clear fluid mucus from nose, whereas during the attack the nose had been very dry. The middle turbinate was so swollen and boggy that cocain was of no avail and chloroform was employed. No reflex neuroses, such as sneezing, cough, etc., were present as should be expected if the case were one of pure pressure against the septum, while the history, taken with the others related in this paper, seems to me to leave no room for doubt as to the real condition.

Also in Case 7 the significant symptoms correspond with those given in my cases. The patient showed marked exophoria with diplopia at times, pain over left eye and in left temple, swelling of upper lid and pain in eyeball, indistinct vision, improvement of vision and exophoria after middle turbinectomy. No doubt the other typical symptoms could have been found if the sinuses had been suspected.

In none of my cases have I been able to find any fundus changes as Posey[7] has observed several times. I have never seen a case of iritis or uveitis which I could prove to be caused by the accessory sinuses as reported by Fish,[8] but I am constantly on the alert for such cases and have made the examination of the nose and sinuses part of the routine examination of the eyes.

The point which I wish especially to emphasize is the absence of all definite nasal symptoms and the apparently normal nose found. All symptoms point to the eyes, and the patient often objects to having his nose examined, as he is so very sure that he has no nasal trouble. These cases exist in all degrees of severity, from occasional eyeache or browache to acute suppuration in the sinus. It is the more frequent but less obvious nonsuppurative cases that we are overlooking and treating for muscular anomalies. I have relieved the milder unilateral pain at least twenty times in my own case by applying suprarenalin to the middle turbinal of the affected side.

My thanks are due to Dr. Casey Wood, Dr. Frank Allport and Dr. Thomas Woodruff for their courtesy in referring their cases to me for examination and for their assistance in the study of this condition.

DISCUSSION.

DR. NELSON M. BLACK, Milwaukee, said that "the more obvious and striking forms of independent diseases have for a long period been recognized and treated," but from a perusal of the literature it is quickly seen that this association or relation has only been recognized by having the presence of the nasal condition forced on the observer, either by the existence of a profuse discharge, the patients calling attention to some existing nasal condition, or the ocular conditions have been reported as complication to some sinus or antrum trouble. The conditions the author bases his paper on have not been recognized and treated as such until recently. The results observed and the relief obtained by the proper treatment of these ocularly manifested nasal conditions is truly wonderful, and it is not surprising that so many look on the reports of these apparently miraculous cures with skepticism and in their outspoken derision seek to hide behind the cover of a multitude of sins—hysteria.

In all probability the symptoms are the result of a combination of factors existing for a long period of time, the extension to the eye being a sort of an overflow, as it were, at first, the ocular symptoms only manifesting themselves at intervals when an exacerbation of the primary cause takes place. If, however, the nasal conditions are allowed to go untreated, pathogenic changes take place in the eye from the constant irritation, and in place of symptoms of disturbed functions there are manifested grave ocular conditions, viz., diseases of the uveal tract, cataract, choroiditis and even glaucoma. There is nothing in the physiology of the accessory sinuses to aid in arriving at a conclusion as to the cause of sinus disease being manifested by ocular symptoms; in fact, very little can be found regarding their physiologic function. The close sympathetic relation between the nose and the eye is well known: by tickling the nasal mucous membrane a copious flow of tears will take place and, vice versa, a sudden flash of bright light will frequently cause sneezing. The constant changes in function of the nasal lining, especially when there exists some pathologic condition, must affect the nervous mechanism of the eye which is so closely related and help bring about vasomotor changes.

Dr. Black did not agree with Dr. Brawley regarding probing

6. Laryngoscope, Oct., 1905.

7. Posey: Jour. Eye, Ear, Nose and Throat Diseases, March-April, 1905; THE JOURNAL A. M. A., Sept. 9, 1905.

8. Fish: Amer. Journal Oph., December, 1904.

and irrigation. He has seen great benefit derived from its being carefully carried out; there is no doubt, however, of the liability of a return of the condition if operative measures are not resorted to. He has reported one case of retrobulbar neuritis of frontal sinus origin. Another case is under treatment at the present time and is making rapid progress, vision having improved from 6/lx to 6/xii in five days time with an enlargement of the visual field and reduction of size in an absolute central scotoma. Further study of the subject will undoubtedly be productive of some radical changes in the now generally accepted etiology of many eye diseases.

DR. S. L. LEDBETTER, Birmingham, Ala., referred to the case of a man who complained of pain in the frontal region and defect of vision in one eye. He gave a history of a severe cold, but no suppuration in the nasal cavities. On examination he found that the eye was apparently perfectly healthy, except for a slight cloudiness in the macular region; vision equalled 20/100. The other eye was perfectly normal. The pains increased for the next two days. He made a diagnosis of posterior ethmoidal and probably sphenoidal engorgement, ordered a Turkish bath, laxatives, a little alterative tonic, and light diet. In a few days the patient was only able to count fingers at two feet with that eye and complained of much more pain, so that opium had to be given. He was put on diaphoretics, pilocarpin and other things, and kept up the laxative treatment and ordered rest. He reported again in two days complaining of the other eye and on examination it was found that both optic discs were swollen, almost obscure, an evidence of retrobulbar neuritis. The pains were so severe that even with opiates he could not sleep. This continued for several days, when the patient became more comfortable. The second eye had never become quite so bad as the other; vision equalled 15/50. The pains subsided and the evidences of engorgement were passing away, but the optic neuritis still persisted. There was no history of specific trouble or rheumatism.

DR. BRAWLEY said that he had probed and irrigated the sinuses only when he discovered pus in the middle meatus, because probing the sinuses complicates the diagnosis. He laid stress on the fact that many of these cases, seen early, do not have pus, and probing may lay one open to the criticism of having caused the suppuration when it occurs.

TO WHAT EXTENT CAN THE GYNECOLOGIST PREVENT AND CURE INSANITY IN WOMEN?*

W. O. HENRY, M.D.
OMAHA.

REVIEW OF LITERATURE.

The question of the relationship existing between pelvic diseases in women and insanity is one which has occupied the attention of the profession many years, more particularly since 1857, when Loiseau presented a thesis on the subject, "Sympathetic Insanity," which caused considerable discussion, and also since the paper by Hergt, in 1870, on the subject, "Women's Diseases and Disturbances of the Mind." Although from that time to the present the subject has been discussed to some extent in medical societies and through medical journals, even yet great difference of opinion exists among gynecologists and alienists. When I read a paper before the Nebraska State Medical Society in 1898 on the subject, "Relations of Insanity and Pelvic Diseases in Women," there was little sympathy expressed by the members of the society and my conclusions then given, which more extensive experience has served to confirm, were not received with favor. Those important conclusions were as follows:

1. The relations of insanity and pelvic diseases in women have not heretofore received the attention which their importance deserves, nor which they will receive in the near future.

2. Not all insane women who have pelvic disease as a factor can be cured by local treatment or operations, but in the early stages such treatment or operations, in many cases, would have been curative or preventive.

3. Cases not benefited by local and conservative operations might still be cured by more radical operations.

4. All insane or epileptic women should have their pelvic organs most thoroughly examined at once and all diseased conditions should be relieved as quickly as possible by whatever means are necessary.

5. If these things be true, how important for the general practitioner, under whose care all of these cases first come, to see that all pelvic disorders in women are properly treated and cured as soon after their discovery as possible, in order to prevent these mental troubles.

6. Finally, how important for our insane women to have the benefit of what the gynecologist can do at the earliest possible period.

In our text-books on gynecology you will look almost in vain for any encouragement along this line of thought. Pryor, Davenport, Gilliam, Penrose, Garrigues, Byford, Hirst, Ashton, and Dudley give it no consideration. Kelley gives it but scant notice, and one is cautioned against any operative procedures in women who are inclined to mental trouble.

In his edition of 1901 McNaughton-Jones devotes one brief chapter to it and says:

> The relation of disordered sexual functions to mental diseases has hardly received the careful attention on the part of the profession generally that it most decidedly demands. Picque has found as high a proportion of affections of the generative organs among the insane as 88 per cent. He reports favorably of the effects of operations on the insane in a fair proportion of those affected. Sherwood Dunn reviews the entire subject and the experience of a number of psychologic and gynecologic authorities and comes to the general conclusion that affections of the pelvic viscera in women are often associated with insanity in the relation of cause and effect; that such lesions predispose to the occurrence of puerperal insanity; that they impede convalescence from mental disorders and operative interference should be advocated in those cases in which pronounced affection of the uterus or adnexa is discovered.

On the other hand, Reed says:

> The reader can readily see why it is unnecessary to discuss the relationship between the pelvic disease and epilepsy, chorea and other nervous diseases. The truth can all be summed up in a word. There is no relation. The same truth obtains with regard to the insanities.

In 1896 W. P. Manton said:

> We long ago came to the conclusion that the idea of restoring the sick mind to health as the result of gynecologic interference should be abandoned.

Yet, strange to say, he goes on to admit:

> I have never operated on an insane woman yet, no matter to what extent dementia has gone, without some relief to the mental condition and a decided improvement in the personal comfort of the patient.

So far as the testimony of gynecologists goes, it seems to be overwhelmingly against the possibility of doing anything either to prevent or to cure these sad complaints. Thurman, of the York Retreat, said:

> In round numbers, of ten persons attacked by insanity, five recover and five die sooner or later during the attacks. Of the five who recover, not more than two remain well the rest of their lives; the other three sustain subsequent attacks during which at least two of them die.

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* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

If this be a generally accepted prognosis, how important for us to determine just what the gynecologist can do to prevent insanity before it occurs or cure it after it occurs.

Chapin's definition is:

Insanity is that mental condition characterized by a prolonged change in the usual manner of thinking, acting and feeling; the result of disease or mental degeneration.

The *Alienist and Neurologist* gives this definition:

Insanity is an expression only of functional and organic disorder; remove the disorder on which the insanity depends and the return to mental soundness is secured.

Charles P. Bancroft says:

Insanity is not a specific entity; it is rather an ever varying symptom complex, corresponding to many diverse underlying disease processes. Insanity may be said to be a prolonged departure from the individual's normal method of thinking, feeling and acting, due to functional or organic disturbances of some portion of the encephalon.

The definition of Bondurant of the Alabama Insane Hospital is:

The facts obtained seem to justify the opinion that many of the patients in whom insanity and nephritis co-exist are insane because of the nephritis; that is, the insanity is one of the mental symptoms of acute or chronic uremic intoxication.

H. A. Tomlinson, Minnesota, says:

The pathologic history of insanity is known to be vague and indefinite and from the standpoint of histology, furnishes very little information to the student in search of specific morbid changes which will explain the clinical manifestations of aberrant cerebral functioning. This apparent absence of definite anatomic change is to be explained by the conditions which give rise to insanity; namely, the precedence of physical disease, shock, overwork, mental strain, infection, or autointoxication from some source. Consequently, the insanity can not be said to be dependent on the changes found to be present in the neuron, but rather, the histologic change and the insanity follows the conditions generated by antecedent somatic changes to which they are consecutive.

Kohlberger says:

The source of mental diseases is not only in the brain but in all the organs.

Morrell says:

Although the brain is always the seat of insanity, it is not always the seat of its cause.

From these opinions I think we may say that insanity is that mental condition characterized by a prolonged change in a person's usual manner of thinking, acting and feeling without apparent cause and yet, doubtless, the result of some brain or other bodily disease.

In the report of the New York State Commission of Lunacy for the year ending Sept. 30, 1906, the following were the causes assigned for insanity in 4,819 cases admitted to the New York hospitals for the insane in the preceding twelve months:

Moral Causes: Adverse conditions, loss of friends, business troubles, etc., 354; mental strain, overwork, worry, 384; religious excitement, 65; love affairs, including seduction, 32; fright and nervous shock, 95.

Physical Causes: Alcoholism, 476; sexual excess, 24; venereal diseases, 94; masturbation, 90; sunstroke, 50; accident or injury, 87; pregnancy, 9; parturition and puerperium, 136; lactation, 15; change of life, 100; fevers, 23; privation and overwork, 80; epilepsy, 183; other convulsive disorders, 5; diseases of the skull and brain, 76; old age, 230; exophthalmic goiter, 1; epidemic influenza, 40; abuse of drugs, 44; loss of special sense, 6; uremic poisoning, 2; other autoinfections, 1; heredity, 357; congenital defects, 44; unascertained, 1,413. Of the total number 1,069 had inherited predisposition.

Tomlinson says that of 937 admitted, 212 had a heredity of insanity, while 266 had a heredity of cancer and 170 had a heredity of phthisis, 123 had sexual excitement or perversion, 233 had some menstrual disorder, 443 had leucorrhea, 408 had uterine displacement, 222 of these last had adhesions, 79 had disease of the ovaries, 337 had laceration of the cervix, 424 had laceration of the perineum, 238 had cystocele, 229 had rectocele. Then he says:

People become insane. Why? Because of defective nervous organization and not because of cardiac or renal disease. The physical disease simply upsets the unstable nervous organization. So far as we have been able to determine from repeated and persistent cross-examination, it is safe to say that there had been periods of confusion, suspicion and dread for at least a year before the untoward conduct or overt acts of the individual made the nature of his conduct manifest to his friends.

J. W. Wherry,[1] Dansville, N. Y., writes a very instructive article in which, among other things, he says:

The evidences of brain pathology, in abnormal intellectual states, as in idiocy, imbecility, dementia and general paralysis are at least sufficiently established to call for further investigation, but in the emotional insanities, I believe it is useless to probe the brain longer for a secret it does not hold.

I can see no good reason why there should be any doubt about the origin of melancholia in visceral conditions rather than in a disease of the brain.

Maudsley said:

It is clear as day that temporary bodily conditions, however they may have been brought about, will play their part and it may be well that future researches will discover the causes of the characteristic features of some varieties of mental derangements in the diathetic states and the actual bodily disorders which are associated with them. There is the most perfect harmony, the most intimate connection or sympathy between the different organs of the body as the expression of its organic life. Unity of the organism beneath consciousness and the brain is quite aware that the body has a liver and a stomach and feels the effects of disorder in any one of the organs.

Ferrier says:

Healthy states of viscera produce pleasurable feelings and morbid states of viscera produce painful or depressing feelings. Visceral derangements are frequently the cause and always the accompaniment of melancholic depressions.

C. C. Hersman,[2] alienist to the South Side Hospital, Pittsburg, also read a paper before the Section, in 1899, in which he said:

It is a well-known fact that the ovaries and testicles have at least three distinct actions; the first, generation; the second, their action through absorption on the central nervous system, which give to men and women their physical, moral and intellectual characteristics; the third is a special tonic action which reinforces in a special way the action of the spinal cord and brain.

In addition to this I am not sure, but we will find eventually that there are nerve centers in the uterus, and possibly also in the tubes, which have an important influence on the mental equilibrium. He cites in his paper two interesting cases from the insane department of the St. Francis Hospital as follows:

A Jewess, married, very excited, was in the hospital for a few months. She also suffered from chronic endometritis, was curetted and went home in three weeks, with no mental symptoms. Again, a Polish girl who had been in the hospital for more than a year with no improvement mentally, on examination was found to be suffering from chronic endometritis. She went home cured in two weeks after curetting the uterus. They have both remained well a period of about five years.

1. Am. Jour. of Insanity, January, 1906.
2. "Uterine Diseases and Insanity," THE JOURNAL A. M. A., vol. xxxiii, p. 709.

I am aware we usually look to the brain when searching for the cause of insanity and many times, I fear, when we should look elsewhere. It is necessarily the immediate seat of the disturbances, but the remote cause may be very foreign to that organ. Many times, if the uterine disturbances were relieved, the insanity would be removed. I have seen, as already stated, in the treatment of insanities the result of uterine disease, the local or surgical treatment of the trouble not only cure the uterine disease, but effectually cure the concomitant disease occurring in the brain, thus showing the mysterious (?) and unaccountable (?) connection between them.

The "Reference Handbook of the Medical Sciences," 1902, in the very able and rather exhaustive article on insanity, says, when speaking of the accessory causes:

It is noticeable that organic diseases of the uterus and its appendages are seldom accompanied by profound nervous storms. On the other hand, the leucorrheas, amenorrheas, profuse menses, vaginismus, chronic uterine catarrh, and a host of other comparatively benign affections are now and then followed by mental disturbances. Although it may be said, in general, that the influence of the affections of the generative apparatus as a cause of insanity in woman has been exaggerated, as an accessory factor it is often worthy of consideration.

Thus we see that the general consensus of opinion now among alienists seems to be that various bodily diseases may be the exciting cause of insanity, and hence the importance of curing these diseases as a prerequisite to restoring mental health. Then, too, I think, it is generally conceded that there is a closer and more intimate relationship between the brain and sexual organs than other viscera, so that any disturbance there will more easily affect the mental condition than diseases of any other organs and it is remarkable how large the percentage of pelvic troubles is among insane women and to what extent these women are cured of their mental troubles when the local pelvic irritation is removed. For example, in 1895, Dr. Rohe, of Maryland, said:

The number of my cases is too small (34) to allow me to draw conclusions, but if anything of practical value can be deduced from them, it is that puerperal insanity, melancholia and simple mania offer the best chances of cure from the proper treatment of local lesions in the pelvis. I am convinced that earlier operation in appropriate cases would have largely increased the proportion of recoveries.

And yet of his 34 patients operated on, 14 were cured, 5 improved and none made worse mentally.

Dr. A. T. Hobbs, of the London (Ontario) Asylum, with the gynecologist, Dr. Meek, carefully and systematically examined 220 women who were confined in the asylum, and found 188 of them, or 85 per cent., suffering from some pelvic lesion. They proceeded to operate on 173 of these, and their report is that 42 per cent. of these recovered, 24 per cent. were improved, 32 per cent. remained the same and 2 per cent. died.

LeRoy Broun, of the Manhattan State Hospital, read a very excellent article before the Brooklyn Medical Association in January of the present year, in which, after citing freely from various hospital reports, he says:

Thus it is seen that in all insane asylums a large majority of the women inmates suffer in some form from a disease of the pelvic organs.

Insane patients, being as much subject to physical diseases as their more fortunate sisters have equally as much right to be relieved. Such is now recognized and the majority of the institutions have on their staff consulting surgeons who render such relief as needed. Those unfortunates are now treated as if they were not insane, as far as their physical condition is concerned. As stated, no operations have been undertaken with the direct object of influencing the mental status. The physical status alone has been considered. As a result of adopting this course, fully three-fourths of the patients operated on were sufferers from forms of mental disease recognized as unfavorable and in whom little permanent progress can be made in ameliorating their mental state. The unfortunates of this class have as much claim for physical relief as those of more amenable forms of mental disease. Two hundred and forty-two patients have been given some form of gynecologic operation, which is a little less than 5 per cent. of the total number of women in the hospital during the period covering the operations. Of those operated on there have been 62 abdominal sections, 51 operations for displaced uteri and 129 minor plastic operations. As a result of all the operations done (242) 112 patients have been physically benefited in a marked degree, 107 have been noticeably improved, though not to such a great extent as in the previous number. Of the remaining patients five died, of which number two deaths were attributable to the operation and three to natural causes. The statement made by some writers that operative measures for diseased conditions at times aggravate the insanity of the patient is not in accord with my experience. No instance of such an occurrence exists among patients I have operated on. The same statement is made by Manton concerning his operations in the East Michigan Asylum covering a period of 20 years and by Picque, who has been operating for 12 years among the insane of Paris. The rare occurrence of true psychosis following gynecologic operations on women not previously insane has been brought out by Rohe.[3] He states that, as a result of communication with all the asylums of the United States and Canada, he found that in the course of ten years prior to 1893 only 25 patients had been registered in all these asylums as having become insane after gynecologic operations. In studying the histories of the patients on whom I have operated, I find that of the 242 patients, 138 still remain in the institution and 104 have been discharged. Of those discharged 43 are recorded as recovered mentally. Twenty of these 43 discharged as cured have had their mental recovery materially hastened as a result of the physical improvement arising from the operation done on them. While in the majority of these patients there had been some mental improvement before the operation was done, yet, in all of the twenty the psychic improvement following the operation was marked, as also was the steady progress toward mental recovery.

While I do not wish to criticise the author of this paper, still I am confident that his small percentage of cures resulted from the fact that he did not entirely remove all pelvic disturbance, or, in other words, his operative work was not radical enough. Of course, simple justice will require us to admit the possibility of another factor, and that is too long duration of the mental disturbance before the pelvic trouble was looked after, but the former seems to me far more likely, because the doctor's point of view was not altogether right, for he should have gone at his pelvic work with the primary object of so thoroughly getting rid of the irritation there as not only to cure the physical ailment, but to be confident that by perfect results here he would reap much greater benefits, namely, a restored mentality and, no doubt, richer and better results would have crowned his labors. To illustrate what I mean, I have selected a few cases from his report read at the sixty-first annual meeting of the American Medico-Psychological Society at San Antonio, April, 1905.

SELECTIONS FROM LE ROY BROUN'S CASES.

Mrs. S., age 39. General health: Fair. Disease: Dementia, paralytica ovarian cyst and retroflexed uterus. Operation: Removal of cyst, suspension of uterus. Result: Physical condition satisfactory; no marked mental improvement.

Although the result of this operation was satisfactory as far as the physical condition was concerned, we are not surprised that there was no marked mental improve-

3. New York Med. Jour., 1905.

ment, for here, whatever else may have been wrong, the suspension of the uterus granted a new course of pelvic irritation, being wholly irrational and unreasonable.

Miss G., age 40. Disease: Chronic melancholia, retroflexion of uterus, with fibroids. Duration: Two years. Operation: Myomectomy with Bissell's operation. Result: Not satisfactory; mental state unimproved.

In this case there is no question that there was some ovarian trouble and that a hysterectomy would have given better results.

Mrs. F., age 28. Disease: Chronic melancholia, retroversion and ovarian cyst. Duration: Three years. Operation: Curettage anterior vaginal section, removal right ovarian cyst and shortening of round ligaments. Result: Operation satisfactory; mental condition unimproved.

There can be little doubt that there was left behind sufficient difficulty to maintain the irritation previously existing before the operation.

Mrs. R., age 32. Disease: Acute melancholia, retroversion, laceration of the cervix and perineum. Operation: Curettage hysterorrhaphy. Result: Operation was successful; no improvement mentally.

Here, too, the local irritation was not entirely removed.

Mrs. L., age 28. Disease: Acute melancholia, adherent retroversion with double pyosalpinx. Operation: Excision of cervix and perineorrhaphy with suspension of uterus.

No wonder the patient did not recover, for there must have remained an abnormal amount of pathology in the pelvis.

Mrs. S., age 34. Disease: Chronic melancholia with retroflexion and laceration of cervix and perineum. Duration: Three and one-half years. Operation: Hysterorrhaphy curettage, excision of cervix and perineorrhaphy. Result: No mental improvement.

Mrs. L., age 39. Disease: Chronic mania with multiple fibromyomata and retroversion. Duration: Ten years. Operation: Myomectomy and hysterectomy. Result: Operation successful but no mental improvement.

Here there can be no doubt that a supravaginal amputation, with probable removal of tubes and ovaries, would have given better results, and certainly if done earlier the chances of recovery would have been increased.

Mrs. H., age 35. Disease: Paranoia with adherent retroversion and laceration of cervix and perineum. Duration: One year. Operation: Uterus suspended, left tube and ovary removed, excision of cervix and repair of perineum. Result: Satisfactory but no mental improvement.

Certainly these operations, while they removed part of the pathology, left as much behind to maintain the mental aberration and, therefore, were not adequate.

Mrs. M., age 25. Disease: Acute melancholia of two months' duration, with double adnexa diseases. Operation: Both adnexa were removed and hysterorrhaphy. Result: Mental condition unchanged.

Miss F., age 36. Disease: Chronic melancholia of eight years' duration with endometritis and retroversion. Operation: Curettage. Result: Physical condition improved and mental condition only slightly improved.

Here, with an endometritis and retroversion probably of eight or ten years' duration, there could not have been a healthy condition of the ovaries and tubes. Neither could the retroversion be left alone and the pelvic irritation relieved. Hence, this case did not have the relief which might have been afforded by more thorough treatment, and certainly we could have reasonably expected more had the operation been done earlier.

AUTHOR'S CASES.

My own cases now comprise a total of 28. Of this number only one patient has been operated on too recently to tell what the ultimate result will be. The others have been operated on long enough to signify something of the benefit they will receive. The first ones were operated on nine, ten and eleven years ago and remain well to the present time. Sixteen of the patients made a perfect physical and mental recovery. One died soon after the operation. All except this one were temporarily benefited and none made worse. Two have since died of the intercurrent troubles. Eight, although slightly improved, I have not been able to trace and do not know their condition. The one so recently operated on and very much better I can not yet report on, although the improvement is marked, and apparently the recovery will be perfect.

CASE 1.—Woman, aged 34, married ten years, never pregnant, had chronic endometritis with cystic ovaries. Removal of the tubes and ovaries was done in 1895 and she has remained well from that time until now. She had acute mania.

CASE 2.—Woman, aged 34, mother of one child, ten years old. Patient had retroflexed uterus, lacerated cervix and cystic ovaries. Cervix was repaired, tubes and ovaries were removed and patient made a good recovery mentally and physically.

CASE 3.—Woman, aged 42, mother of several children, suffered from a large subinvoluted uterus with lacerated cervix, retroflexion and prolapsed ovaries. She had melancholia and dementia for a year and a half. Supravaginal amputation of the uterus, tubes and ovaries was made after which she made a perfect physical and mental recovery.

CASE 4.—Woman, aged 30, mother of one child, had melancholia, subinvoluted uterus, degeneration of ovaries. Curettement was done and tubes and ovaries removed. Patient made good recovery from operation and was mentally improved, but I have lost sight of her and can not now trace her.

CASE 5.—Woman, aged 35, mother of two children, had retroflexion of uterus, chronic oöphoritis and melancholia. Removal of tubes and ovaries resulted in perfect physical and mental health.

CASE 6.—Woman, aged 45, mother of two children, suffered from melancholia, had a large retroflexed uterus, prolapsed tubes and ovaries. Supravaginal amputation of the uterus and removal of the tubes and ovaries resulted in perfect physical and mental health.

CASE 7.—Woman, aged 40, had melancholia, large retroflexed uterus, prolapsed tubes and ovaries. Vaginal hysterectomy resulted in immediate improvement, but after she returned home I lost sight of her and have not been able to locate her since.

CASE 8.—Woman, aged 42, mother of five children, suffered from melancholia, chronic oöphoritis and cystic degeneration of the ovaries. Removal of tubes and ovaries resulted in perfect mental and physical health.

CASE 9.—Woman, aged 30, married several years, never pregnant, had retroflexed uterus, degeneration of the ovaries and melancholia for several months. Vaginal hysterectomy resulted in slight improvement, but she finally refused to take food and died in the asylum.

CASE 10.—Woman, aged 50, mother of two children, had passed the change of life. Uterine fibroid with calcareous degeneration was present. Vaginal hysterectomy was done and resulted in physical and mental soundness.

CASE 11.—Woman, aged 36, mother of two children, had bad laceration of the perineum, subinvoluted and reflexed uterus and prolapsed ovaries. Repair of lacerations and removal of tubes and ovaries resulted in perfect cure, physical and mental.

CASE 12.—Woman, aged 30, married several years, never pregnant, had retroflexed uterus and periodical mania. After vaginal hysterectomy she made physical and mental recovery.

CASE 13.—Woman, aged 27, married several years, never pregnant, had cystic degeneration of the ovaries and melan-

cholia. Removal of tubes and ovaries resulted in physical and mental health.

CASE 14.—Woman, aged 38, retroflexed adherent uterus and prolapsed tubes and ovaries with melancholia and dementia, had been confined to her bed for several months. Vaginal hysterectomy was done without benefit. The patient died two weeks later.

CASE 15.—Woman, aged 35, married several years, no children, had cystic ovaries and melancholia. Removal of tubes and ovaries resulted in physical and mental health.

CASE 16.—Married woman, aged 35, never pregnant, had cystic degeneration of ovaries with melancholia. Removal of tubes and ovaries resulted in physical improvement and some mental improvement. I lost sight of her and have not been able to locate her since.

CASE 17.—(Details lost.)

CASE 18.—Woman, aged 42, mother of three children, developed puerperal mania with septic condition of the uterus. Supravaginal amputation with removal of tubes and ovaries, resulted in physical and mental improvement. I have lost sight of the case and do not know the ultimate result.

CASE 19.—Woman, aged 52, mother of several children, passed the menopause six years, had suffered from hemorrhoids and retroflexed uterus with ulceration of the cervix and developed melancholia of severe type. Vaginal hysterectomy and removal of hemorrhoids resulted in perfect physical and mental health.

CASE 20.—Woman, aged 23, single, had severe dysmenorrhea and periodical attacks of mania, with melancholia and prolapsed cystic right ovary. On removal of ovary patient improved both physically and mentally.

CASE 21.—Woman, aged 40, mother of four children, developed melancholia, after her last child was born. There was retroflexed uterus with prolapsed tubes and ovaries. Vaginal hysterectomy resulted in physical and mental health.

CASE 22.—Woman, aged 36, mother of two children, had multiple uterine fibroid. Abdominal hysterectomy resulted in physical and mental cure.

CASE 23.—Young girl, 19 years of age, with retroflexed uterus, prolapsed tubes and ovaries, developed melancholia with mania. Venetral suspension was done but she made no improvement and the girl is still in the asylum.

CASE 24.—Woman, aged 38, mother of four children, had retroflexed uterus with cystic ovaries and melancholia and was bedfast for several months. Supravaginal amputation and removal of tubes and ovaries resulted in satisfactory physical recovery and some mental improvement, since which time I have not been able to trace the case.

CASE 25.—Married woman, aged 26, mother of two children, developed puerperal mania after her last child was born and after a thorough curettement for septic uterus and wiping-out with carbolic acid she made a rapid recovery both mentally and physically.

CASE 26.—Unmarried woman, aged 28, with pronounced melancholia was confined to her bed with intramural fibroid, the removal of which resulted in some physical and mental improvement, but two years later she died without having fully recovered her normal mentality.

CASE 27.—Young woman, aged 27, severe dysmenorrhea since early girlhood with periodic attacks of mania and melancholia and cystic degeneration of both ovaries. Removal of tubes and ovaries has resulted in marked relief both mentally and physically, but the time is yet too short for a final report in this case.

CASE 28.—Mrs. B. (Dr. S.), aged 30, mother of two children had retroflexed uterus and cystic ovaries which resulted in melancholia. Abdominal hysterectomy was done, tubes and ovaries being removed. She made a good recovery and was mentally improved when she left the hospital, but I have been unable to trace her since and do not know the final outcome.

CONCLUSION.

Dr. A. T. Hobbs, now superintendent of a private sanitarium at Guelph, Ont., in a recent letter, sums up his views as follows:

Pelvic diseases interfere with mental health in two ways: Through reduction of physical well being and through reflex irritation. The removal of disease, the restoration of displacements, the extirpation of tumors and repair of injuries will first restore the physical health and through it the mental condition; and, second, will remove a source of reflex irritation. Granted that a number of cases of puerperal insanity will recover without operation, I know positively, from experience, that two things have occurred and will occur; namely, that good mental health is hastened by surgical interference and that a number of patients would never have recovered without surgical interference and that the recovery is due entirely to the removal of serious diseases interfering with the return to physical and through it to mental health. Lesions of the ovaries are, without doubt, causative factors, and disease of the uterus too, in producing insanity, in cases of nervous heredity.

I would like to emphasize another point, and that is that many insane women who have pelvic trouble do not complain of it. While this also obtains in women who are not insane, yet it is very much more apt to be the case in women who are mentally unbalanced, as is attested by those who have given the subject careful thought and as shown by my own cases, and again I would like to insist on the point that sometimes there is serious ovarian degeneration which is not discoverable by ordinary pelvic examination. So that I am sure some of these patients in asylums who are examined by the most competent gynecologists have serious ovarian disease which could only be detected by opening the abdominal cavity and personally making a macroscopic inspection of the ovary. So that it is not sufficient to say that examination has been made and no pelvic trouble found, for, as every operator knows, a good many times when the abdomen is opened and the ovary is carefully inspected serious disease is found, even when not suspected by bimanual examination.

I wish, then, to conclude my paper by insisting that the gynecologist can prevent the occurrence of insanity in many women with very unstable nervous organization if he will, by treatment or operation, remove all pelvic irritation; and, again, he may cure various forms of insanity in women if such irritation is entirely removed, and it is important not to substitute a lesser form of irritation in getting rid of the more serious one. Conservative treatment and operations are all right, if they really secure complete removal of all pelvic irritation; but to get all the results we have a right to expect from gynecology, and which we can undoubtedly secure in a very large proportion of cases, we must wholly eradicate the pelvic irritation by whatever means are necessary, no matter how radical the work required.

DISCUSSION.

DR. W. P. MANTON, Detroit, Mich., said that his experience with this subject extended over many years; that he was the pioneer in this line and the first to take up systematic work among insane women. For seventeen years he has been connected with two large state institutions in Michigan, and has had to do also with two private hospitals for the insane, so that several thousand insane women have passed under his observation. One of the best recent articles on this subject is by Dr. LeRoy Broun in a late number of the *Journal of Medical Sciences*. Dr. Broun has had large opportunities for observation and arrives at the same conclusions as Dr. Manton. He took exception to the first item in Dr. Henry's abstract. When he began work every asylum superintendent in the land, with the exception of Dr. Henry M. Hurd, now of Johns Hopkins University, but then superintendent of the Eastern Michigan Asylum, was utterly opposed to any gynecologic interference with insane women. If the alienist does not now know anything about these conditions it is his own fault, said Dr. Manton, because he and a great many others have brought

this matter up repeatedly. He does not believe this to be true, however, for as the result of work done there is to-day hardly an institution which has not a gynecologist connected with it. While there is unquestionably a relationship between the pelvic organs in woman and the brain, Dr. Manton does not believe that, except in possibly rare instances, disease of the former gives rise to mental alienation. Whenever insanity exists, however, and there is a local point of irritation present in either the pelvis or the abdomen, the mental condition is often made worse, and by removing the irritation, no matter how demented the woman may be, she will be made more comfortable and is more easily taken care of. In a large number of cases he has never seen an instance in which the mental condition was not relieved to some extent as the result of this kind of treatment. In his experience some 81 per cent. of insane women suffer from local disorders; but if 100 women who are walking about in apparent perfect health were examined it will probably be found that as large a percentage are suffering from some abdominal or pelvic disorder also. So that the finding of this percentage of local disease among insane women really means that a large number of women, sane or insane, have this burden to carry. Operations undertaken solely for the cure of mental disorder in insane women are wrong; but every insane woman suffering from abdominal or pelvic disease is as much entitled to relief from the somatic condition as is her sane sister. The late Dr. Rohé, who wrote a good deal regarding the curability of insanity in women through surgical means, appears to have been too sanguine, and Dr. Manton is not altogether certain about Dr. Rohé's cases. Another observer, Dr. Hobbs, was assistant physician at the London (Ont.) asylum under Dr. Buck, when he began his investigations. Hobbs' results and Dr. Manton's do not tally, and Dr. Manton is left to conclude that Dr. Hobbs deals with a different class of cases. Dr. Buck became very enthusiastic regarding the operative cure of insanity.

DR. F. F. LAWRENCE, Columbus, O., said that this subject was discussed in a symposium in Denver, when Dr. Joseph Price was chairman; also in Atlantic City in 1900. The question among alienists has been pretty thoroughly determined, that back of it all is an unstable nervous organization, and the question of attempting to cure insanity *per se*, by surgery, is somewhat far-fetched. As Dr. Manton said, the insane person is entitled to the same character of surgical relief that the sane person expects. The surgical condition may be causative in a sense in a great many cases. The possibility of a patient recovering her mental balance is greater if all physical suffering can be removed. If she has a bleeding fibroid she has a better chance to recover her health if it is removed. The late Dr. Carpenter and he had examined between 100 and 200 patients. In the neighborhood of 84 per cent. of the total number had some form of intrapelvic trouble. Of that number the history of only about 21 per cent. showed that the abdominal condition preceded the mental. He advocated surgery for all surgical conditions, whether in sane or insane; but in the absence of gross pathology insanity or other neuroses can not be reasonably expected to yield to any form of surgery.

DR. W. O. HENRY, Omaha, said that he was glad to hear the remarks of Drs. Manton and Lawrence, but that his contention is that these pelvic diseases in women of unstable nervous organization are the particular thing that often upsets the mind, and the curing of these things before they have upset the mind will, in such cases, prevent the breakdown. So long as no one can tell what insanity really is, he thinks that practical experience in cases that are cured counts for more than anything else. When he has operated on cases and five or ten years later the patients are still well, that counts for more than all the theory on earth. Of 28 cases he had 16 patients go home well. This is of real practical value. He does not claim that every insane woman can be cured by operation, but many can, and every insane woman should be given the benefit of all possible aid which can be afforded by the removal of all pelvic irritation. And finally, by curing these pelvic irritations in women of unstable nervous organizations, before insanity occurs, its development may often be wholly prevented.

THE NOMENCLATURE OF ENDOMETRITIS.*

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The word endometrium should be used to refer to the mucous membrane which lines the body of the uterus. The mucosa of the cervical canal is anatomically and physiologically a different structure, and although it may properly be called endometrium, usage more or less restricts that term to the mucosa of the body of the uterus.

The endometrium is intimately connected with the musculature of the uterus and its circulation is greatly influenced by changes which occur in the blood vessels of the myometrium and by the tonicity of the uterine muscle. The endometrium is continuous with the lining membrane of the tubes and with the epithelial layer of the cervix, therefore, it follows that the endometrium is influenced by all inflammatory affections, displacements, new growths and congestions of the genital organs.

By some it is held that the term endometritis (inflammation of the endometrium) should be applied only to those lesions of the endometrium which show histologically the products of an active reaction of the tissues to an irritant. According to this view, endometritis is always the result of infection with a micro-organism. By others it is held that there are causes of inflammation other than bacterial; and that a long continued inflammatory process, produced either by bacterial infection, or by mechanical or other forms of irritation, may produce hyperplastic or atrophic changes in the endometrium, without any histologic evidence of an acute inflammatory reaction.

Such a distinction results from a difference in the conception of what constitutes an inflammation and has little practical importance. Thus, what is considered glandular hyperplasia of the endometrium by the adherents to the first view is called glandular endometritis by the adherents to the second. It is our belief that it will lead to less confusion of terms to regard "glandular hypertrophy" of the endometrium and "atrophy" of the endometrium as the end results of a chronic endometritis, or as Sänger has aptly stated it, the residuum of an inflammation.

The classification of endometritis should be purely anatomic. In other words, it should be divided into the acute and the chronic forms. While acute endometritis involves all of the component parts of the endometrium indifferently, the chronic form may affect especially the glands or the stroma. Any classification of endometritis, based on etiologic factors, is faulty, because the etiology of chronic forms can not always be determined, and, therefore, the classification in many cases would be useless. There is also no relation in the chronic form between the cause and the form of the anatomic change in the endometrium.

A classification based on clinical symptoms, as catarrhal, purulent, or hemorrhagic, is also bad, for such terms might be easily applied to different stages of the same process, and a classification based on symptoms leads to an almost endless variety of forms.

The age of the individual also should be given no place in the nomenclature. Senile endometritis conveys no pathologic meaning; the terms juvenile or adolescent endometritis may be employed just as properly.

In conformity with inflammatory lesions elsewhere, we may speak of acute and chronic endometritis. The chronic form may further be divided into glandular and interstitial, when the glands on the one hand or the stroma on the other are especially involved. Pathologists may subdivide the chronic forms in order to indicate anatomic peculiarities, but this is not necessary for the clinician.

Endometritis, except in the acute form, rarely exists alone. It is usually complicated by inflammatory lesions of the cervix or of the pelvic viscera; lacerations of the cervix or of the

*Report of the Committee on Nomenclature of Endometritis to the Section on Obstetrics and Diseases of Women at the Fifty-seventh Annual Session of the American Medical Association, June, 1906.

pelvic floor; retrodisplacements of the uterus; chronic pelvic congestion; uterine or ovarian tumors.

Except in the acute form, therefore, which is incident to gonorrhea or to infection following labor, abortion or instrumentation of the uterus, it has in itself little clinical importance. It should be considered and treated with the exceptions noted above, only in conjunction with the lesion which produces it. In many text-books this fact is not pointed out, and the student is led astray as to the frequency and the significance of the disease, and as to the necessity of its individual treatment.

CONJUGATE DEVIATION OF THE EYES AND HEAD AND DISORDERS OF THE ASSOCIATED OCULAR MOVEMENTS

IN TUMORS AND OTHER LESIONS OF THE CEREBRUM.*

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VARIOUS VIEWS DISCUSSED.

Within the past two years the causes of conjugate deviation of the eyes and head have repeatedly been the subject of controversy, especially by certain French writers. In 1904, Bard[1] advanced the sensorial theory of conjugate deviation, although this had been spoken of previously by Roux.[2]. This theory has since been ably supported, especially by Dufour,[3] and opposed by Grasset,[4] Dejerine and Roussy,[5] and others.

Chiefly through the kindness of Dr. Charles K. Mills and Dr. William G. Spiller I have had the opportunity to study 16 cases of conjugate deviation of the eyes and head, 15 of which are with necropsy, and I have attempted to come to such conclusions as to the causes of conjugate deviation of the eyes and head as the evidence in these cases will permit, together with the aid of cases in the literature.

Disorders of associated ocular movements occurring in lesions of the cerebrum will be discussed only in so far as they occur in association with conjugate deviation of the eyes, and in cases of hemianopsia due to peripheral or central lesions. The importance in clinical diagnosis of paralysis of associated movements of the eyeballs has been discussed only recently by Spiller.[6]

The literature is replete with instances of conjugate deviation of the head and eyes as a result of lesions in almost every part of the brain. Experimental investigations on lower animals confirm what has been said of the pathologic evidence, for it has been shown that electrical excitation of any portion of the brain, if of sufficient intensity, is productive of deviation of the eyes, or of the head, or both.

There is good reason for this. Perhaps no function is more highly specialized than that which is concerned with the movements of the head and of the eyes. These are constantly moved for one reason or another; the auditory and the visual senses probably playing the most important part in the determination of these movements. Such specialization of function necessarily needs and acquires a most complex cortical representation.

With our present knowledge of cortical representation we should expect a motor center for the movement of the head, a separate center for the eyes, and still another for the combined movements of the head and eyes. Within the past few years the cortical centers for all, or nearly all, motor function have been placed in front of the central fissure. This has been borne out by experimental and pathologic evidence. We should expect, therefore, that there should be but one motor center for each function, and that center anterior to the Rolandic fissure. It has been shown that movements which are performed conjointly by corresponding or correlated muscles on both sides of the body have a cortical representation in each cerebral hemisphere. Therefore we should expect a bilateral cortical representation for the deviation of the eyes and of the head.

Any auditory, visual, or olfactory stimulus will cause conjugate deviation. Touch, pain, or temperature stimuli will also cause deviation. Besides it has been held that reflex or automatic and voluntary impulses initiated independently of these senses may cause such deviation.

Taking up the subject of conjugate deviation of the eyes or of the head, or of both, as the result of anyone of the above-mentioned sensory stimuli, what is the cerebral mechanism of this conjugate deviation? Illustrating by the sensation of hearing, we presume that an auditory impulse is first transmitted to the auditory center in the temporal lobe, from here it is carried by means of association fibers to the motor center, from which motor impulses are transmitted to the nerve cells which supply the muscles concerned with the function to be performed. In like manner a unilateral motor center for the conjugate deviation of the eyes and head should be in intimate connection by means of association fibers, not only with the auditory center in the temporal lobe, but also with the visual center in the occipital lobe and with the olfactory centers in the uncinate gyrus and the gustatory center wherever situated, and with the centers for touch, pain and temperature senses in the parietal lobe. In brief, sensory irritation in any portion of the body will cause deviation of the head and eyes in the direction of the irritation through the correlated activities of the sensory and motor centers concerned. Not only that, but the centripetal fibers which transmit these impulses from the periphery to the cortex must be intact for the proper interpretation of these stimuli: and the centrifugal motor tracts must also be intact for the physiologic performance of their functions. Should any portion of this most complex mechanism be disturbed, the result would be failure in normal deviation of the head and eyes, the deviation depending entirely on the nature and location of the lesion.

The most recent writers on this subject, Cantonnet and Taguet,[7] advance the idea of an automatic or reflex center for ocular movements in the optic thalamus. In support of this they quote cases of cortical lesions in which there was paralysis of voluntary ocular movement, but in which reflex or automatic movements were preserved. We have always regarded reflex movements of the eyes as best illustrated by the fact that the eyes will follow the moving finger or hand in different directions; and that similar deviation will take place in response to various sensory stimuli. It would, perhaps, be advisable if we were to define "reflex" and "auto-

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

* From the Department of Neurology and the Laboratory of Neuropathology, University of Pennsylvania.

1. Bard: Semaine Médicale, Jan. 13, 1904.
2. Roux: Arch. de Neurol., September, 1899.
3. Dufour: Rev. Neurol., April 15, 1904.
4. Grasset: Rev. Neurol., July 15, 1904.
5. Dejerine and Roussy: Rev. Neurol. No. 3, Sept. 15, 1905.
6. Spiller: Jour. Nervous and Mental Dis., July and August, 1905.
7. Cantonnet and Taguet: Rev. Neurol., No. 7, 1906, p. 308.

matic" movements more clearly. When the eyes deviate in a certain direction because of a noise, that is a reflex action, only in the sense that a movement is performed because of a sensory stimulus. If the sensory part of the reflex arc is disturbed, as in deafness, no amount of noise will cause deviation. Why should this be called an automatic movement?

. It has been shown that in lesions of the thalamus, we sometimes have such symptoms as forced or involuntary laughing or crying, and in lesions of the superior cerebellar peduncle there may be incoördinate movements of some of the limbs. These are examples of automatic movements. If we assume that a similar automatic center exists for ocular movements in the thalamus, should not a disturbance of such a center cause forced or incoördinate ocular movements?

In his very able presentation of the subject of associated ocular movement, Spiller[7] agrees with others that paralysis of associated ocular movement laterally is due to lesions of the posterior longitudinal bundle, and asserts that a paralysis of upward and downward movement is probably the result of a lesion near the oculomotor nuclei. He believes that a tract similar to the dorsal longitudinal tract, and possibly a part of this fasciculus, situated near the oculomotor nuclei, connects these nuclei, and that an interruption of the tract causes failure of associated upward or downward ocular movements. He does not admit the need of a basal coördinating center for ocular movements, near the oculomotor nucleus.

When the eyes follow the finger, this is really an associated movement, and the result, not of a pure reflex action, but of a distinct sensory (visual) impression, in the same sense that a noise (auditory impression) will cause deviation of the eyes. If the sensory arc is interfered with as in blindness, the eyes will, of course, not be able to follow the finger as the result of a visual impression.

A voluntary movement is the result of a stimulation of a motor center. The question arises whether in a normal individual a pure voluntary impulse is possible without a previous sensory stimulation, the term sensory stimulation being used here in its broadest sense. When we will to move the eyes independently of any immediate sensory stimulus, as when in meditation, there is at least a psychic stimulus to the cortical oculomotor center (that is, the center for the movements of the eyeballs), this stimulus may come, for example, from the higher psychic areas of the prefrontal lobe, but it is intimately dependent on stored impressions at one time or another received or accumulated by means of sensory mechanism, and moreover in the act of using the eyes in such circumstances as when one wills to read a book or to look at the stars, sensory impression takes part in the lateral and upward movements. It is probable, therefore, that a centrally initiated voluntary impulse is dependent on the functioning of a central reflex arc, and that any interference with this would cause deviation.

Summing up the views so far advanced, it is my opinion that the movements of the head and eyes are dependent on a most complex mechanism; that there is only one true or at least functionally important cortical motor center anterior to the central fissure; that this motor center is in immediate connection with the sensory portions of the brain; that whenever the head and eyes are moved it is the result of a sensory stimulation, and that any interference with the sensory-motor arc will cause impairment of this function. Let us now consider in order the embryologic, anatomic, physiologic and pathologic evidence in support of these views.

EVIDENCE IN SUPPORT OF VIEWS.

The well-known myelogenetic investigations of Flechsig[8] support these views. According to him, in his primordial zones or regions of early development are included exclusively projection fibers, sensory and motor, or, as he terms them, corticopetal and corticofugal. He believes that for every sensory path there is a corresponding motor path. In the primordial zones are included the motor and sensory regions, the visual or occipital lobes, the auditory or upper temporal regions and the olfactory and gustatory centers principally in the anterior temporal region. The myelogenetic differences between the primordial and the intermediate and terminal zones, according to Flechsig, are the result of successive development of different sense organs and their motor or centrifugal paths, and the development of long and short association systems.

In the main these views have received physiologic and pathologic confirmation. What appears to be the view of Flechsig that each primordial area is both sensory and motor can not be altogether agreed with, but it must be recalled that his views are only relative, for in his myelogenetic area No. 1, which corresponds with some closeness to the central convolutions, the tactile radiation is distributed mostly to the postcentral convolution, while the tract which is undoubtedly motor originates from the precentral convolution. This would argue for separate cortical representation for motor and sensory functions, and would accord with our present views.

With the auditory or cochlear myelogenetic area in the first temporal convolution Flechsig finds a corticofugal radiation, which he believes may be motor, although this has not as yet been demonstrated. The cells and fibers which constitute this radiation lie at the lower border of the first temporal and in the furrow which separates it from the second temporal convolution. He assumes that motion of the head and of the body following an auditory impression may be performed through the intermediation of corticofugal fibers which originate in or near this center. Similarly, Flechsig reasons that movements of the eyes and of the head consequent to visual stimulation are due to the intermediation of corticofugal fibers from or near the visual zone. Motion as a consequence to olfactory stimulation can likewise be explained.

According, then, to Flechsig's view, a movement of the eyes or of the head is the result of a sensory stimulation and may be due to an auditory, visual or other sensorial impression coming by way of the corticofugal fibers which originate in these centers. I do not agree, however, with the view that the corticofugal fibers coming from the special sense centers are purely motor projection fibers, as Flechsig appears to believe. Undoubtedly the corticofugal radiations associated with the corticopetal radiations in Flechsig's myelogenetic area No. 1, which corresponds to the sensory and the motor centers around the central fissure, are purely motor. The corticofugal radiations of the primary auditory and visual zones are probably not purely motor projection fibers, but in large part are fibers which connect these special sense areas with the oculomotor centers in the main motor region. A sudden auditory stimulation will, of course, cause immediate turning of the head and

8. Flechsig: "Gehirn und Seele," Leipzig, 1896.

eyes, but this is not because, or at least not usually because, a motor impression is transmitted by the corticofugal fibers directly from the auditory center to the nuclei which are concerned with the muscles necessary to perform that function, but rather because the auditory impression is transmitted by means of association fibers to the motor cortex and thence to the basal nuclei.

When an auditory impulse is received in the temporal convolution it may be stored up in the auditory memory center, it may be transmitted to the visual center and recall visual images associated with the sound produced, it may cause olfactory or gustatory stimulation or it may cause the movement of almost any portion of the body as the person wills. In the performance of all these possible functions it is necessary to have the auditory center in direct communication with the other sensory centers, and this is accomplished by means of associated fibers, the existence of which have been repeatedly demonstrated; similarly the visual centers are likewise in association with other centers.

Mills[9] believes that each sensory area has its motor correlative and that each of these has its separate cortical representation. He speaks of a sensory motor, visual motor, auditory motor, gustatory motor, olfactory motor and a possible equilibratory motor area. According to Mills, this conception does not do away with the importance of our old-time motor area, which still remains the great or main motor region. His view is that at least in the highly developed human being the centers for movements of the head and eyes and for other movements have largely taken the place of the motor projection fibers which exist in, or in close contiguity with, each of the special sense areas; in other words, the visual motor area, auditory motor area, olfactory motor area and gustatory motor area are largely, although probably not altogether, in abeyance in movement, although still retaining their importance to a greater or less degree in the animal scale below man. If this be the case, the arguments brought forward in this paper which are based on the idea of a single active functioning region for movements of the head and eyes are valid; in other words, we can disregard all cortical motor areas except those which lie in front of the central fissure.

Experimental investigations also confirm my views, for it has been shown that electrical excitation of any portion of the brain, if of sufficient intensity, is productive of movements of the head and eyes. Four principal areas have been found in the brain of lower animals in which electrical stimulation will produce these movements: in the frontal lobe, in the so-called neck or head region, in the angular gyrus and in the occipital lobe. Partly because of the fact that stimulation of the posterior portion of the second and third frontal convolutions and the region near the angular gyrus is always productive of movements of the head and eyes, these two areas have been considered by various authors as the motor centers for these functions.

Landouzy[10] and Wernicke[11] were among the first to favor the area near the angular gyrus or the *pli courbi* of the French. The physiologic experiments of Luciani and Tamburini,[12] Ferrier,[13] Munk[14] and Obregia[15] supported their views, for stimulation of this region constantly caused deviation of the eyes and head. Against this view, however, were the extirpation experiments of Brown and Schäfer[16] on the brains of apes in which conjugate deviation was not obtained. Again Flechsig has shown that this area contains few projection fibers. It is probable that electrical stimulation of the occipital and parietal regions causes deviation of the eyes and head, not because of a motor center in these areas, but because of stimulation of the visual and auditory fibers, respectively. It has been shown that underneath the angular gyrus lie the fibers from the occipital and auditory lobes, and it is because of the combined involvement of these that any stimulation or lesion of this area causes such constant deviation of the head and eyes.

The work of Ferrier,[13] Mott and Schäfer,[17] Beevor and Horsley,[18] and lately of Sherrington,[19] has conclusively proved the existence of an oculomotor center in the posterior portion of the second and third frontal convolutions. The existence of a separate center for the movement of the head, for the eyes and a combined center for the movement of the head and eyes has been repeatedly shown in lower animals, and it is probable that such differentiation also exists in man. Beevor and Horsley[18] in apes (*Macacus sinicus*) found an isolated center for movement of the head, for the eyes and for the head and eyes in the posterior portion of the first, third and second frontal convolutions, respectively. Later these authors found in an orang-outang, in the precentral convolution, underneath the hand region, a center in which irritation caused deviation of the head and eyes, and, on the other side of the brain, deviation of the eyes alone because of irritation of the foot of the second frontal convolution.

A critical study of the evidence furnished by the physiologic experiments in lower animals favors the view that there is a separate center for the movement of the eyes in the foot of the second frontal convolution, that a separate center for the movement of the head exists in the lower part of the precentral convolution along its anterior edge, and that further stimulation of either area may cause a combined deviation of the head and eyes.

Normally, the head and eyes are moved together more often than separately, and the eyes more than the head in separate movement. We should expect, therefore, from developmental and physiologic reasons, that the oculomotor center should be better developed than the head center, and that stimulation of the head center should more often give conjugate movement of the head and eyes than stimulation of the eye center. This is proved by the experiments of Beevor and Horsley,[18] Ferrier[13] and Mott.[17] The experiments of Sterling[20] are of extreme interest in this connection. This author irritated the so-called neck region in young animals and found that he could obtain movements of the head alone in dogs 8 days old, whereas associated movements with the eyes could not be obtained until the twenty-first day. He did not perform the converse experiment by irritating the ocular centers alone, which would be interesting. We can, however, argue from this that separate centers for the eyes and head exist, and that because of association between them irritation of one may cause

9. Mills: "Brain," 1889, and Univ. of Penna. Med. Bulletin, May, 1904
10. Landouzy: Thèse, de Paris, 1876.
11. Wernicke: Arch. f. Psychiatrie, 1888, vol. xx, p. 243.
12. Luciani and Tamburini: See Klaas' Dissertation, Marburg, 1898.
13. Ferrier: "Hirnlocalisation," 1890, Leipzig and Vienna.
14. Munk: "Sitzungsberichte der Kgl. akad. der Wissenschaften zu Berlin," 1890.
15. Obregia: Archiv. f. Anat. u. Physiol., 1890, p. 260.
16. Brown and Schäfer: Phil. Trans., Royal Society of London, 1888.
17. Mott and Schäfer: "Brain," 1890.
18. Beevor and Horsley: Phil. Trans., Royal Society of London, vol. clxxxi, 1890, p. 129.
19. Sherrington: Jour. Phys., 1894.
20. Sterling: Arch. f. Anat. u. Physiol., Phys. Ab., 1903, p. 486.

movement of both. It is also for this reason that irritation of other portions of the brain besides the motor, cause in most instances combined movement of the eyes and head.

Our knowledge of the direction of the movements of the eyes and of the head is chiefly in regard to lateral deviation. Reasoning from analogy, we should expect a separate center for upward and downward movement, as well as for lateral movement. The experiments of Mott[17] proved that this exists in lower animals. By irritating, in apes, the posterior portion of the frontal convolution he obtained movement of the eyes in a horizontal direction, to the opposite side and upwards, and to the opposite side and downwards, the points irritated lying from the median to the lateral side, laterally, on the outer side and in the median portion, respectively. A similar order was present for the movement of the head. Schäfer was enabled to obtain somewhat similar results by stimulating different parts of the occipital lobe.

Permanent paralysis of upward or downward associated ocular movement is only rarely observed clinically, and, as Spiller has shown, is probably due to lesions near the oculomotor nucleus. In pathologic conjugate deviation of the eyes the deviation is sometimes laterally and upward or downward, as in Case 7 of my series; but I know of no reported case in which the conjugate deviation of the eyes was purely either in an upward or downward direction. There are several physiologic reasons for this. In the first place, lateral movements of the eyes are better developed than upward movement, but perhaps no better than downward movement. There is still another important factor: One side of the brain controls movements of the eyes and head in the opposing direction; the tendency for deviation would, therefore, naturally be in a lateral direction. This was well shown in the experiment of Mills,[9] who faradized in man the head center and obtained deviation of the head to the opposite side.

The functions of convergence and divergence are considered by the majority of authors as reflex phenomena with possibly basal centers. This I believe, however, to be an error. I am of the opinion that they are as much muscular movements and dependent on a similar mechanism as either lateral, upward or downward associated ocular movement. In convergence the internal recti muscles of either side are used, while in divergence the external recti are called into action. Should, for instance, an internal rectus be paralyzed, the corresponding eye will not be able to converge. This can be compared to failure of associated lateral movement of one eye, if the external rectus is paralyzed.

If we believe, as no one doubts, that there is a connection between the external rectus muscle of one side with the internal rectus of the other by means of the posterior longitudinal bundle, and if, as Spiller believes, there is a similar tract connecting the nuclei of the superior rectus and inferior oblique muscles of one side with the corresponding nuclei of the other side, and if this bundle is concerned with upward movement, and if there is another tract for downward associated ocular movement, why should not there be a similar tract connecting the internal recti nuclei and another connecting the nuclei of the external recti, these having to do with convergence and divergence?

It is true that the existence of such tracts has not been demonstrated, but neither have the tracts which are supposed to be concerned with upward and downward movement. There are, however, clinical facts which support this view. In the majority of cases of paralysis of associated ocular movement due to pontile lesions, either convergence or divergence is lost. In the statistics collected by Spiller, of 47 cases, the condition of convergence was noted in 26. Of these, convergence was impaired in 15 cases, and in 9, normal or nearly normal. In most of the cases in which convergence was said to be normal, the observations were made some time before death, and this function might well have been lost later.

It is more than probable that convergence and divergence have also cortical representation and that this is in the posterior portion of the second and third frontal convolutions. This subject will be fully discussed in a subsequent paper on paralysis of associated ocular movements due to basal lesions.

Let us now consider the pathologic evidence. Conjugate deviation of the head and eyes may occur as a result of lesions causing hemiplegia, in tumors of various localities, in areas of softening, in meningitis, in epilepsy; in fact, it can be shown that any lesion in any portion of the brain may cause deviation. Consider, for instance, the statistics collected by Grasset.[21] Of 104 cases, 48 with necropsy, in 2, lesions were shown in the frontal lobe; in 10, in the frontal and other areas; in 25, in the internal capsule and cerebral peduncles, and in 11 the lesions were diffuse.

In the 16 cases with necropsy reported in this paper, lesions were found in almost every portion of the brain. In Case 1 an area of softening was found in the frontal lobe. In Cases 3 and 4 there were diffuse cortical hemorrhages in the frontal, parietal and occipital lobes. In Case 5 a hemorrhage was found directly in the angular gyrus. In Case 6 a hemorrhage was found in the occipital lobe and an area of softening in the precentral convolution. In Case 7 (Fig. 1) a large fibrosarcoma occupied the whole of the occipital lobe. In Case 8 there was a thrombosis of the middle cerebral artery. In Cases 9 10 and 11 there were hemorrhages in the posterior limb of the internal capsule and the neighboring parts. In Cases 12, 13 and 14 there were lesions in the lenticular nucleus and external capsule. In Case 15 there was a lesion of the lenticular nucleus alone. In Case 16 (Fig. 2) there was an area of softening involving the anterior limb of the internal capsule and lenticular nucleus, with a fresh hemorrhage underneath the angular gyrus. Besides in Cases 14 and 15, in which no fresh hemorrhages were found, there was dilatation of the lateral ventricles.

If we consider more minutely the location of the lesions causing conjugate deviation, we find three principal areas involved: 1. The frontal area. 2. The area of the angular gyrus. 3. The internal capsule. We can still further subdivide these regions. In the frontal areas there are recorded cases of lesions involving the posterior part of the second (Sahli,[22] Drummond[23] and Oppenheim[24]) and others of the posterior part of the second and third frontal convolutions (Klaas,[25] Case 4 of my series, and others). Besides, there are a large number of recorded cases of lesions involving the posterior portion of the second and third frontal convolutions, the adjacent precentral convolutions and other areas, as in the cases collected by Müller[26] and Klaas.[25]

21. Grasset: "Des Localisationes dans les Maladies Cérébrales." Montpelier, Paris, 1880, pp. 215 to 238.
22. Sahli: Deutsch. Arch. f. klin. Med., vol. lxxxvi, No. 1-3, p. 1
23. Drummond: Lancet, 1887.
24. Oppenheim: "Charité Annalen," 1885.
25. Klaas: Inaug. Diss., Marburg, 1898.
26. Müller: Deutsch. Zeitschr. f. Nervenhlk., 1902, vol. xxii, p. 375.

The important factor is that in all of these cases the posterior portion of either the second or third frontal convolutions or the adjacent part of the precentral convolution was involved.

Of the lesions in the region of the angular gyrus may be included any lesion in or near this area. Whatever in this region causes conjugate deviation must cause interruption of the fibers underneath the angular gyrus. If the lesion is posterior to this point, as in Case 6, there is only an interruption of the fibers from the occipital lobe. If the lesion is directly in the angular gyrus or beneath it, as in Cases 5, 12, 13 and 14, there is an interruption of the fibers both from the occipital and temporal lobes. In every one of these cases the lesions extended underneath the cortex and must have involved the fibers coming from both these lobes.

In the lesions involving the internal capsule, a differentiation can be made between those involving the anterior limb and those involving the posterior limb. In the former the projection fibers from the frontal lobes are involved, while in the latter there may be an involvement of the motor, sensory or optic fibers. It is the opinion of some French writers, notably Bard,[1] that to cause deviation there must always be an involvement of the optic radiations. This, however, is not correct, as in most of the recorded cases, also in mine, there was no such involvement.

From the pathologic evidence, therefore, the conclusion must be drawn that lesions involving the posterior portions of the second and third frontal convolutions and the adjacent precentral convolution cause conjugate deviation of the eyes and head, and that when lesions elsewhere in the brain produce conjugate deviation there is an interruption either of the projection fibers in or near the internal capsule or of the association fibers between the occipital and temporal cortex and the frontal lobe.

Consider now the pathologic evidence regarding the oculomotor center in the frontal lobe. It is the opinion of some, as of Sahli,[22] that in man there is no evidence that a separate center for the movement of the head and eyes exists. Müller,[26] on the contrary, believes that there are separate centers for these functions, and he places both in the posterior portion of the second frontal convolution, the center for movement of the head being in the under portion and that for the eyes in the upper portion of this convolution. From the pathologic evidence at hand, no one doubts the existence of the oculomotor center in the posterior portion of the second and probably the third frontal convolution. The principal reason why lesions of this area cause deviation also of the head is because the head center is so intimately associated with the oculomotor center that an irritation or lesion of one will most likely cause involvement of the other.

That a separate center exists for the movement of the head was beautifully shown in the faradization experiment of Mills[9] in man, in which a faradic irritation in the lower precentral convolution caused movement of the head alone to the opposite side. This is proven also in Case 6, in which an area of cortical softening was found in the lower precentral convolution, causing Jacksonian convulsions limited to the face and partly to the hand, and also causing deviation of the head to the other side, but the eyes were not moved. Therefore, the center for movement of the head in the lower part of the precentral convolution should be placed below and probably a little forward of the hand center.

It is more than probable that the cortical oculomotor center in the posterior portion of the second and third frontal convolutions is subdivided for lateral and upward and downward movements. According to Parinaud,[27] the center for upward movement is in the lowest portion of this area; for downward movement in the upper, and for lateral movement in the median portion.

Mills and Frazier[28] obtained forward movement of the head by irritating the anterior portion of the head center in the precentral convolution. In another case in which the records have been lost, Dr. Mills distinctly remembers obtaining upward movement of the eyes alone. This most important evidence proves that cortical centers for upward and downward movements for the head and for the eyes exist. It is also probable that a separate center exists for the combined movements of the head and eyes, and this center is probably between the individual head and eye centers. This center may also be subdivided for lateral and upward and downward movements.

DIAGNOSTIC VALUE OF CONJUGATE DEVIATION.

So far we have not considered conjugate deviation in a clinical sense, or its value in diagnosis. Conjugate deviation of the eyes and head occurs most often in hemiplegia, and its occurrence is considered an unfavorable sign, as most such cases end fatally. Also it is most always accompanied by unconsciousness. Indeed, Grasset believes that it always is. The conjugate deviation involves mostly the head and eyes together, but it rarely involves the eyes alone, as in Cases 4, 12, 13, 14, 15, and in exceptional cases the head alone, as in Case 6. More rarely still, the deviation of the head is in one direction and the eyes in the other, as in Case 1. The only similar cases recorded are by Roussy and Gauckler,[29] Dufour (cited by Roussy and Gauckler[29]), one case of Prevost's (cited by Grasset[21]) and a case of Gaussel.[30]

The deviation is never permanent and, as a rule, does not persist longer than two or three weeks and in most cases about a week. The deviation of the head is not so persistent as that of the eyes and is the first to disappear. At times, instead of there being a complete deviation there are jerking movements of the eyes, these being mostly in a lateral direction, but occasionally as in Case 13 they are in a lateral and upward direction. The jerking movements of the eyeballs are always from the median line to the external canthus and never in the whole range of movement. These nystagmoid movements must be differentiated from the violent jerkings seen in the course of a convulsion, these lasting only during the convulsion and always being to the opposite side of the lesion, whereas in the other conditions the jerkings may be to either side, depending on the nature of the lesion.

Prevost[31] first showed that deviation is toward the lesions when the lesion is cerebral and away from the lesion when it is in the isthmus. Some years later Landouzy[10] advanced the view that irritation and paralysis caused deviation in opposite directions when the lesion was in the cerebrum, the patient looking at the lesion when it is a paralyzing one and at the paralyzed limb when it is of an irritating nature. Grasset[21] later showed that the opposite was true in lesions of the brain stem.

27. Parinaud: Arch. de Neurol., vol. v, No. 14, 1883.
28. Mills and Frazier: Univ. of Penna. Med. Bulletin, July, August, 1905.
29. Roussy and Gauckler: Rev. Neurol., 1904, p. 763.
30. Gaussel: Semaine Médicale, May 18, 1904.
31. Prevost: Thèse de Paris, 1868.

The above facts have been repeatedly demonstrated. It must be remembered, however, that the same lesion may at different times cause paralyzing or irritating symptoms.

Wernicke[11] first advanced the view that the rapid disappearance of the conjugate deviation of the head and eyes was owing to the partial control of these movements by the cerebral hemisphere of the sound side and to the action of its oculomotor and head centers. It is also because of the action of the oculomotor center in the unimpaired hemisphere that conjugate deviation can be most readily explained. If one oculomotor center or the fibers in association with it are injured or destroyed they cease to perform their function, at least for a time; therefore, the center in the sound hemisphere causes the deviation to the opposite side, which would cause the eyes to look at the lesion. In irritative lesions as in tumors, this rule is reversed because as in experimental investigations irritation of one side causes movement to the opposite side.

In those cases in which the deviation of the eyes alone, or of the head, occurs, it must be that their respective centers or their associated fibers are separately involved. Similarly, in those rare instances in which the head and the eyes are deviated in separate directions, there must be an irritating lesion acting on one center and a paralyzing one on the other. These clinical facts also argue for separate cortical centers for the eyes and the head.

If we compare the pathologic lesions causing conjugate deviation with others in which no deviation occurs, as, for instance, in a hemorrhage which causes hemiplegia, we may find a most remarkable similarity in their location and extent. Naturally the question arises, why should conjugate deviation occur as a result of one lesion and not of another? As a matter of fact, to a certain extent, this does happen in every case; only in some the symptoms are more marked. The deviation in other words is of minor or partial degree, but nevertheless real. Leichtenstern and Hunnius (cited by Klaas[25]) have shown that in cases of brain apoplexy in which no deviation occurred there was difficulty in looking to the side opposite the lesion, while the patient could easily look to the side of the lesion. This fact has caused Brissaud and Pechin[33] to call this symptom an "ocular hemiplegia," an excellent term. It may be that conjugate deviation only occurs when the lesion is large and the patient unconscious, or it may argue, according to some, that there is a special tract concerned with conjugate deviation, the existence of which, however, has not been demonstrated.

In 1904 Bard[1] gave a new impetus to the study of conjugate deviation of the head and eyes. He then advanced the view that in the greater number of hemiplegics with conjugate deviation we have present a more or less degree of lateral homonymous hemianopsia, and it is because of an active movement subconsciously commanded by the sensory-motor centers of the sound side that the patient turns the head and eyes of the sound side to regard that which he sees. Bard also says:

> The exterior excitations produced by reflexes are not indispensable, the fact that because of the suspension of activities of the one hemisphere, the spontaneous evocation of the sensorial images has not always no part there, is capable of causing the lateral deviation and it is without doubt for this reason that these sometimes persist, just as they may appear during sleep.

33. Brissaud and Pechin: Rev. Neurol., 1904, p. 638.

Bard also elsewhere says that the sense of sight plays the predominating rôle in conjugate deviation of the eyes and head. His view has been supported by Dufour,[29] but denied by Grasset.[4] The case of Dejerine and Roussy[5] effectively disproves the views of Bard,[1] for in this patient in whom conjugate deviation occurred there was blindness from birth, showing that there need not be hemianopsia in association with conjugate deviation, contrary to the views of Dufour[29] and Grasset,[4] who believe that hemianopsia is a most frequent symptom. This I also believe to be an error. In most of the cases here recorded it was not possible to demonstrate hemianopsia; in fact, it was only possible to do this in three.

There is still another source of error. In many instances following an apoplectic attack there seems to be what clinically can be more or less satisfactorily demonstrated as a homonymous hemianopsia, but at necropsy the lesion does not involve the optic radiations. This hemianopsia may be transient, and may be demonstrated only for a day or so, or may remain longer, and can be likened to the temporary hemianesthesia so often seen in capsular lesions. In other words, it is my view that many of the hemianopsias demonstrated in these cases are only temporary symptoms and are due either to shock of the hemorrhage or to a fleeting injury of the optic radiations, and that this hemianopsia is the result of the lesion as much as the conjugate deviation and not the cause of the latter.

This is well demonstrated in Case 16. When the patient was examined by Dr. McConnell and myself she had, besides a right hemiplegia, a deviation of the head and eyes to the left. She could look to the left and upward and downward, but could not look to the right past the median line. In testing her with the hand or with the feeding cup a homonymous right, lateral hemianopsia was repeatedly demonstrated. This was not obtained the following day. At necropsy an area of red softening was found involving the anterior portion of the left lenticular nucleus and the caudate nucleus, and a small hemorrhage was found just underneath the left angular gyrus. The optic radiations or the posterior limb of the internal capsule were in no way affected (Fig. 2). The hemianopsia was undoubtedly the result of shock, although the patient was fairly conscious and could obey commands.

To a certain extent hemianopsia does influence the associated movements of the eyeballs, but it probably has no effect whatever in producing conjugate deviation. It is well known that in cases of hemianopsia, whether of peripheral or central origin, the patients have a tendency to deviate their heads, but here, instead of the head being deviated to the side in which one sees, the patient deviates the head to the hemianopic side because he desires to bring into use the part of the retina which is not diseased.

There is still another factor. If a patient has a hemianopsia of any duration he soon learns that he can not look to that side, and in a short time he will accustom himself not to deviate his eyes in that direction. If such a patient were to be suddenly asked to look in the direction of the hemianopsia, he would not be able to deviate his eyes immediately, or to deviate them so promptly as toward the sound side. This I was able to demonstrate in two cases of hemianopsia due to a basal syphilitic lesion, and in one case was able to judge from this symptom on which side the hemianopsia existed.

In Case 7 paralysis of associated ocular movement

existed to the hemianopic side, and this persisted until almost the time of death, for several months. This patient had a large fibrosarcomatous tumor, as shown in photograph (Fig. 1), which occupied the whole of one occipital lobe. This patient had first scintillating scotoma, then hemianopsia, hemianesthesia and hemiplegia. The paralysis of lateral associated ocular movement was not complete, and in this case was probably due to the hemianopsia.

During the active stage of conjugate movement of the eyes the patient can very easily rotate the eyes toward the side of the lesion, and also upward and downward, but in most cases can not deviate them toward the sound side. This paralysis of associated ocular movement is only relative and depends on the conjugate deviation. It is, of course, only temporary.

Irregular or ataxic movements of the eyeballs have been recorded as a result of lesions of the frontal lobe. Thus in a case of Dercum,[34] of trauma to the frontal lobe, ataxic movements were present, as were also in a similar case of Klien's.[35] These symptoms, however, alone are not diagnostic, but may be valuable when accompanied by other symptoms.

CONCLUSIONS.

The following conclusions can be drawn as a result of the studies in this paper:

1. Conjugate deviation of the eyes and of the head is dependent on a most complex mechanism.

2. In the human being there is but one oculomotor center, or at least one active functionating center, situated in the posterior portion of the second and third frontal convolutions, adjacent to the precentral convolutions.

3. A separate center exists for the movements of the head, probably in the lower anterior portion of the precentral convolution.

4. There is probably in man a distinct center for the combined movements of the eyes and head, situated in the area between the head and the eye centers.

5. It is probable that the cortical oculomotor, head and combined head and eye centers are subdivided for lateral as well as for upward and downward movements.

6. The oculomotor and the motor head centers are in connection by means of association fibers with the cortical centers for the special senses, in the temporal, occipital, uncinate and other lobes.

7. Any lesion in the motor centers for the eyes and head or in the related special sense centers or in the association fibers connecting the former with the latter will cause an impairment in voluntary deviation of the eyes or of the head, or of both, this depending on the nature and location of the lesion.

8. Lesions in the angular gyrus cause conjugate deviation because of involvement of visual and auditory fibers which lie underneath this area.

9. The theory of Bard[1] that conjugate deviation of the eyes and head is always or nearly always accompanied by homonymous lateral hemianopsia and dependent on this is an error, for in the majority of instances hemianopsia does not exist.

10. Hemianopsia may be caused by the shock or transient effects of the hemorrhage, this loss of half vision being only a temporary symptom and similar in nature to the temporary hemianesthesias sometimes observed in capsular lesions.

11. The occurrence of conjugate deviation of the eyes or of the head, or of both, is of no value as a focalizing symptom, because it may be the result of a lesion in any portion of the cerebrum. It may be of value, however, in conjunction with other localizing symptoms.

12. Conjugate deviation of the eyes and head probably occurs in every case of large apoplectic lesions, but in some instances it is a partial or minor form and of transient duration.

13. Paralysis or impairment of associated ocular movement may occur as a result of a hemianopsia. This, however, is only temporary.

14. There is at present no evidence of a center or centers for automatic ocular movements, but if such centers exist in the thalamus a lesion of these should cause forced or incoördinate ocular movements.

15. Convergence and divergence are probably not reflex acts, but associated ocular movements similar to lateral and upward movements. They probably have cortical centers in the posterior portion of the second and third frontal convolutions. The movements of convergence and divergence are probably brought about by associating tracts in the pons and cerebral peduncles.

(*To be continued.*)

34. Dercum: Jour. Nervous and Mental Dis., Feb., 1905.
35. Klien: Deut. Ztschr. f. Nervenheilk., vol. xxvi, 1904, p. 327.

THE RELATION OF EYE-STRAIN TO CHRONIC HEADACHES.*

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There is no one symptom so frequently complained of to the general practitioner as that of headache. It is the burden of suffering of civilized peoples. It is heard in connection with almost every case of impaired health, functional or organic.

The etiology of it we, as physicians, should most persistently endeavor to determine in each case. The late Dr. E. C. Seguin said: "The thorough study of a case of headache is one of the most difficult problems of medicine," and Alfred L. Loomis designated it as a "symptom of exceedingly difficult interpretation."

The reflex headaches or neuralgias due to essential eye-strain comprise the greater percentage of all cases met with. I have the records of over 1,280 eye examinations that justifies me in stating 90 per cent. of all those complaining of this distressing malady had ocular defects.

These examinations—most of which were made as part of routine work—one-half, or over 600, revealed ocular defects that were never surmised by the patients themselves, and many of them were exceedingly skeptical of the suspected cause, inasmuch as they could not directly attribute, subjectively, the cause to their eyes; their vision being apparently good for all distances and conditions of light or work. Over 80 per cent. of the 1,280 cases had some form of headache, periodical and chronic; 15 per cent. had typical migraine. Only 5 per cent. had discoverable organic lesions that possibly intensified or was partly to blame for the head pains. Of these, one-half of 1 per cent. had some form of chronic nephritis (diagnosed or suspected by appearance of the eye grounds). A few cases of diabetes mellitus and three cases of brain tumor were recognized by the ophthalmoscope. One-fourth of 1 per cent. had absolutely emmetropic eyes, but with muscular anomalies. Twenty

* This article was prepared to be read before the Section on Practice of Medicine of the American Medical Association, Boston, June, 1906.

per cent. had gastrointestinal or hepatic functional derangements, the resulting toxic anemia being coincidently relieved or greatly benefited after the ocular reflexes were corrected. Fully 50 per cent. of the sufferers had but slight refractive errors or muscular imbalance contrary to the statements of authorities who teach generally that anything under one diopter of refraction may be ignored and left uncorrected when the vision is 20/20 or better. It is in these cases where ciliary spasm is the direct factor in causing headaches in people whose occupation is for near work—accommodative asthenopia results because of the inability of the ciliary muscle to compensate for the constant and excessive demand for innervation in focusing for near-by objects.

In the "sick" or "bilious headaches" 10 per cent. of the cases met with existed in women at the menopause or were complicated by pelvic disorders, loose kidneys and lax abdominal walls. Ten per cent. had intranasal diseases. Of those who were relieved of their headaches, 75 per cent. had no other treatment than properly adjusted glasses or appropriate treatment for their muscular anomalies. About 20 per cent. partially helped or not relieved refused ocular treatment or disregarded advice in the wearing of glasses or for other personal considerations. Dr. Gould has given sixty-eight reasons why glasses do not relieve.[1]

There are three etiological factors in eye-strain why aches, viz.:

1. Errors of refraction.
2. Errors of accommodation.
3. Errors of muscular balance.

There is nothing especially characteristic in headaches due to eye-strain—except perhaps it is that the subject rarely suspects it being due to that cause. The types mostly met with are the occipito-cervical, fronto-temporal and the hemicranias. Apparently no relationship exists between the severity of the pain and the amount of ocular defect present.

Dr. G. Martin (Paris) reported, in 1888,[1] 359 cases of migraine due to the lower grades of ocular defects, and I have never met a case of migraine in a subject with normal eyes: many of them have been relieved solely by ocular therapeutics. The symptomatology can best be given by relating the history of a typical case.

Mrs. M. T., aged 32, married, father and mother both suffered from headaches up to 40 years of age. A maternal aunt also had headaches. Patient had malaria fever for some months many years ago. No return since. She is married and has had three children and three miscarriages with no history of complications. Her present physical condition seems only fair. She is "run down," anemic, and has a look of distress. Physical examination of chest, negative; abdomen reveals a right floating kidney; pelvic organs, negative. Nose, throat and ears negative. She complains of belching, "sour stomach," pains in the back of head and behind the ears. Bowels and catamenia are both regular. She has been suffering from periodical attacks of sudden blindness, vertigo, palpitation of the heart, dyspnea, extreme nervousness, numbness of the left arm which rapidly involves the entire left side and finally the whole body, with loss of consciousness follows. A severe and blinding headache precedes or accompanies these symptoms. Some times it is ushered in by a chill. There is always coldness of the extremities, a cold sweat, or a rush of blood to the head; nausea occurs usually—rarely vomiting. She suffers from constant pain in the forehead, mostly over the left brow. These attacks recur from one to three times in each month, are worse at the menstrual period, and usually last all day, gradually passing off after lying down and getting to sleep. They often leave the patient weak for two or three days afterwards. She came to me June 10, 1905. I found she had a moderate degree of compound hyperopic astigmatism which was corrected by glasses. She had been a sufferer since marriage for over ten years. On December 9, last, she reported she has never had a "spell" since she put on the glasses, has gained 25 pounds and "never felt as well before" in her life. Her kidney has not received any mechanical or other treatment.

Frequently eyes with considerable visual defects produce no symptoms of eye-strain, while the normal balance of health is maintained and there is no excessive demand on the nervous reserve, but let a sickness develop or a period of mental stress ensue, then these eyes, or, rather, the nervous system, is no longer capable of sustaining or compensating for the refractive errors, and functional derangements become manifest. It is more so with muscular anomalies. Our brain intends the eyes to perceive and sustain binocular single vision. Images should fall equally on the maculæ of both eyes. The brain will not tolerate diplopia, although it frequently will astigmatism for long periods.

One other condition of the eyes that is not uncommon, yet, I am sure, is not recognized as frequently as its importance demands, is that of subnormal accommodation or premature presbyopia in young subjects. It is productive of most alarming nervous symptoms of headache and particularly of insomnia. These subjects often have very acute vision for distance, with a slight muscular trouble of exophoria or esophoria, which is often a misleading condition. They refuse all distance lenses or prisms, but find immediate relief when a presbyopic correction is made.

In conclusion, I can not do better than quote from Dr. Myles Standish's paper,[2] in which he says: "Every ophthalmologist knows full well that eye-strain should be spoken of, not as the sole cause of the various nervous depressions which follow, but as the precipitating cause. . . . The result is entirely dependent on the man behind the eyes: if his nervous equilibrium is such that it is easily disturbed, or if his power of resistance to nervous irritation is diminished, then there follows some functional nervous disturbance which exhibits itself at the point where the individual with the greatest difficulty maintains peaceful activity, so to speak. One man has headaches, another has muscular twitchings, another has dyspeptic symptoms, and so on."

1. Am. Med., July 4, 1903.

2. Read before the Boston Society for Medical Improvement, Dec. 15, 1904; Boston Med. & Surg. Jour., Feb. 23, 1905.

RESULTS OF THE EXAMINATION OF STUDENTS' EYES

IN THE DEPARTMENT OF PHYSICAL EDUCATION, UNIVERSITY OF PENNSYLVANIA.*

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AND

R. TAIT McKENZIE, M.D.

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PHILADELPHIA.

The present report is based on the examinations made of students' eyes during the college year of 1905-06. Eight hundred and eighty-three students were examined, and as the tests were conducted with great care and thor-

* Read before the Philadelphia County Medical Society, Oct. 10, 1906.

1. The position of ophthalmologist to the Department of Physical Education at the university was held by Dr. M. W. Zimmerman from 1897 until 1901, the present incumbent, Dr. Posey, being appointed in 1901.

of eyeness, and were supplementary to an equally exhaustive study of the entire physical condition of each student, it was thought that an analysis of the results might be of value, not only to ophthalmologists, but to educators also, and even to the public at large. While some may question the desirability of making exercise and care of the body part of a university course, no one can criticise the endeavor to ascertain the ocular defects of the student and the expediency of correcting any existing errors of refraction.

Such tests have been practiced at the University of Pennsylvania since 1897, but until 1904, when the completion of the gymnasium rendered the examination of a very large body of students practicable, the tests were confined to members of the college department.

Conforming to the plan which has been adopted in the examination of the general physical condition of the students, the tests of the ocular condition were made in the autumn. It is planned, however, to submit students to a second test in the spring just before graduation, for the purpose of ascertaining the effect which four years of university life may have had on the ocular condition. Thus all the students have the privilege of a careful and accurate test of their ocular conditions and advice as to the best means to preserve or improve this faculty—an inestimable advantage to men who depend continually on the normal functioning of the eyes for health, comfort and efficiency.

As the proper examination of the eyes of 800 and more students is a task of great magnitude, the ophthalmologist of the department enlisted the services of nine physicians, all trained ophthalmologists, and his assistants in various hospital services, in the performance of the various tests. The names of these, to whom he is indebted for the zeal and accuracy with which they performed their duties, with their various hospital connections are as follows:

Walton C. Swindells, M.D., Associate in Ophthalmology in the Philadelphia Polyclinic.

Jay C. Knipe, M.D., Chief of the Ophthalmological Clinic of the Howard Hospital.

Frank C. Parker, M.D., Assistant Surgeon of the Wills Eye Hospital.

Frederick Krauss, M.D., Ophthalmologist to St. Christopher's Hospital.

Alfred Cramer, M.D., Clinical Assistant to the Wills Eye Hospital.

John A. Colgan, M.D., Clinical Assistant in the Ophthalmological Department of Howard Hospital.

Aaron Brav, M.D., Clinical Assistant in Wills Eye Hospital and Howard Hospital.

Mortimer Herzberg, M.D., Clinical Assistant to the Ophthalmological Department of the Polyclinic Hospital.

James A. Kearney, M.D., former Resident Physician in the Wills Eye Hospital.

With the various classes divided into squads, these gentlemen prepared a short sketch of the ocular history of each student, questions being asked regarding the existence of any known visual defect, headaches, ocular pain or fatigue after studying, or other symptoms which might be of ocular origin. Special inquiry was made regarding the wearing of glasses, of the date at which the eyes were last examined and the name of the physician or optician who made the tests. After these facts had been recorded on a card, prepared for the purpose and arranged for subsequent filing, the student passed to another assistant, who determined the range of accommodation and the degree of visual acuity in each eye separately, by the Snellen type. Another examiner then noted the external configuration of the eyes and the presence of any inflammatory condition or anomaly in their movements. On the completion of these tests the student entered a dark room, where the exact degree of muscular insufficiency was recorded by means of the phorometer, while at another light the ophthalmologist to the department carefully estimated, with the ophthalmoscope, the state of the refraction and studied the condition of the interior of each eye.

With the results of all these tests, and the histories carefully recorded on the filing cards just referred to, the ophthalmologist at his leisure carefully considered the ocular condition of each student and mailed to each the result of the test; and, in the event of the eyes being defective, his advice regarding further procedure. Thus, if the vision was discovered to be far below normal in either eye, or headache or other symptoms of eye strain were complained of, an immediate test for glasses by a competent oculist was advised. If, on the other hand, vision was found to be but slightly defective, refraction was advocated to be done during the holidays, so that the college work might not be interrupted. If the tests showed normal vision and healthy eyes, the student was also informed and his ocular condition pronounced to be satisfactory.

In these examinations a very large number of defective eyes were discovered in students who were either ignorant of the true state of their ocular condition or who neglected its correction through indifference or procrastination. The following instances of this may be cited:

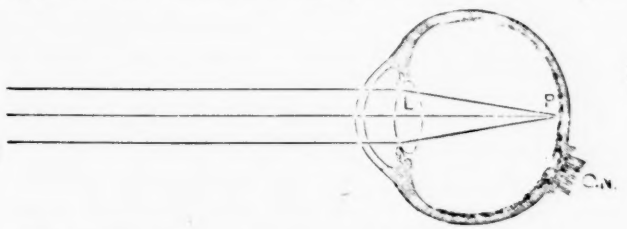

Fig. 1.—Emmetropic or normal eye. Parallel rays of light are brought to a focus on the retina (R).

CASE 1.—J. E. A., a freshman in architecture, replied, when questioned, that his vision was good, so far as he knew, though his eyes ached at times after prolonged study. When subjected to the tests, it was found that the visual acuity was reduced to ½ in each eye and that the eye muscles were weak, while the ophthalmoscope revealed progressive myopia. The student was told of his ocular condition and was advised to consult an oculist for its correction at once.

CASE 2.—Another type is illustrated by M. W., a member of the second year medical class, who had never worn glasses and was unaware that he had anything wrong with his eyes, his vision being perfect for both near and far. Toward the end of each week, however, he had suffered daily from constant pain in the head. As his digestion also became impaired, he attributed the headache to a torpid liver and judged it to result from lack of exercise. After Saturday and Sunday's rest, his head symptoms were always relieved, but he became rapidly drowsy after studying but a short time in the evening and had difficulty in concentrating his attention on his books. Examination revealed normal vision in both eyes, but hypermetropia of high degree, conjoined with marked weakness in the extraocular muscles. Glasses were advised and were prescribed under atropin. The head symptoms immediately disappeared, the digestion improved, and the power of application in studying was greatly increased.

CASE 3.—Still another type was that of a law student, a Hebrew, aged 20, who had worn glasses since early childhood to correct myopia. The glasses, however, had always been obtained from an optician, and the man had never before been subjected to a careful ophthalmologic examination. When

tested with the letters it was ascertained that without glasses he could not discern the largest letters in the test type until they were brought to within 2 meters of his eyes and that even with the glasses he was wearing vision equalled but ¼ of normal. The ophthalmoscope showed the eyes to be in a state of rapidly progressing malignant myopia, with structural changes, which would eventually cause serious impairment of vision unless measures were instituted to correct them. It was learned that the patient's family was myopic, and that he had been nearsighted since childhood. He was of small stature, of delicate physique, and used his eyes almost constantly. The serious nature of his ocular defect was at once pointed out to him, the proper glasses were prescribed under atropin, out-door exercise and less prolonged use of the eyes were enjoined, and special gymnastic exercises assigned, with a view to improving the carriage and increasing the resisting power.

The insistence in such cases as the foregoing of the proper ocular treatment has not only saved many students from much future suffering, but has enabled them while in the university to profit far more by their course of study than would have been the case had they been restricted in the use of their eyes. By revealing the origin of their headaches and other obscure symptoms, and by indicating what should be done for their relief, it has been found that these examinations have lessened the number of absences of students under the excuse of "illness" and, in several cases, by calling the attention of the student's family physician to the existence of general disorders which had not been recognized, serious illness has been averted.

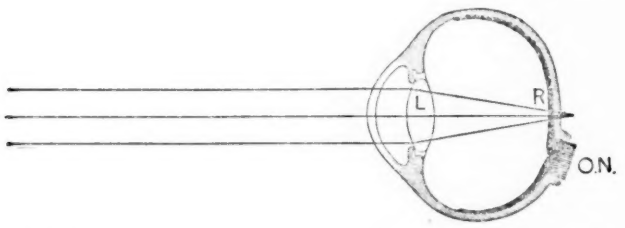

Fig. 2.—Hypermetropic or far-sighted eye. The eye is too short, and parallel rays of light are brought to a focus back of the retina (R).

While, therefore, these tests have been found to be of great practical value in enabling the student to continue the university curriculum without interruption, and to profit in the highest degree from its advantages, the results have also been far-reaching, for, by detecting defective vision or disease in all eyes and insisting on proper correction, further deterioration of the eyes in many instances has been prevented and the development of myopia and other degenerative processes checked. In order that what is about to follow may be the more readily understood, it may not be amiss to state, very briefly, of what the refraction of the human eye really consists, and to define the difference between a far-sighted and a near-sighted eye.

The accompanying diagrams are reproductions of a cross-section through the long axis of three different types of eye: normal or emmetropic; far-sighted or hypermetropic, and near-sighted or myopic human eye. The blue line marking the outline of the ellipse indicates the firm external tunic of the eye, which gives it form and consistency. The parallel lines represent rays of light falling on the eyes, and, being focused by the crystalline lens (L) on the retina (R), from whence the impression of the image received by this membrane is conveyed along the optic nerve (ON) to the centers of sight in the brain.

It will be seen that in the normal eye (I) the rays, by the action of the crystalline lens, are brought to an exact focus on the retina, while in the far-sighted eye (II) the rays by reason of the short antero-posterior axis of the eye are brought to a focus back of the retina. In Figure III, on the other hand, it may be remarked that the rays fail to reach the retina, by reason of the greater length of the eye.

This, briefly stated, is the optics of far-sightedness and near-sightedness. But a few additional words of explanation are still necessary. As will be presently found, the statistics compiled in our examinations, and which verify observations repeatedly made by others, show that there are but few normal eyes, most eyes being hypermetropic. It will be at once asked: Why is it, then, that there are not more people with poor sight, and why should far-sighted subjects be called such, when in reality the rays of light are focused behind the retina and form a blurred image on it? This may be answered by the explanation that far-sighted people escape the predicament just described because Nature provides them with a mechanism to overcome the deficiency in length, in the form of a muscle which acts on the lens to increase its thickness, whereby the rays are brought to a focus on the retina. The neutralization of its defect by muscular activity, however, is not without strain on the far-sighted eye, and if the strain be long maintained, the eye undergoes change; its tissues become congested and

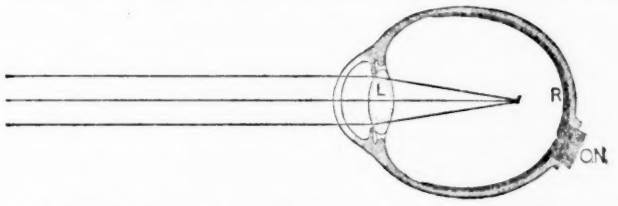

Fig. 3.—Myopic or near-sighted eye. The eye is too long, and parallel rays of light are brought to a focus in front of the retina (R).

softened, and, after a time, in some instances, such eyes stretch and become elongated, and the hypermetropia is converted into myopia.

It might appear from this that a certain amount of stretching in hypermetropic eyes would be of advantage, provided the degenerative process could be arrested when the precise point is attained where the rays are brought exactly to a focus on the retina. Did the elongation of the eyeball proceed equally in all parts, and could the process be in any way regulated, such would be the case, but, unfortunately, the stretching does not occur equally in all meridians; one axis becomes of greater refractive power than the other, and astigmatism results. While the hypermetropic eye can therefore neutralize its refractive deficiency up to a certain degree, this mechanical adaptation reacts on the health of the eye, and degenerative processes set in.

Nor is the near-sighted eye less prone to undergo change than the far-sighted one, for although it can not by any mechanism be made less near-sighted, and the rays of light rendered more divergent and brought thus to a focus on the retina, this type exhibits an even greater tendency to degeneration than the far-sighted eye, and as a consequence of disease, either of the general system or of the eye itself, undergoes still greater elongation.

While there are a few cases of myopia which are congenital, this error in refraction is almost always the result of the prolonged use of the eyes in near vision, and is increased in direct proportion to the amount of strain

placed on the eyes. Ophthalmologists have come to comprehend, too, that near-sightedness, or myopia, is not only a retrograde step in refraction, and an annoyance to those who are near-sighted, from the necessity of wearing glasses to obtain sharp vision, but that it is actually a disease of the eye which frequently induces changes in the tissues of the eyeballs which after a time may render all near use of the eyes impossible and in graver cases lead to partial or even to total blindness.

Numerous statistics have been recorded which show conclusively that if scholars are permitted to continue their near work without regard to some compulsory correction of their ocular defects, or attempts to improve the conditions under which they study, myopia will increase rapidly from the lower to the higher schools. While in the lower classes of primary schools myopia has been recorded as occurring in about 10 per cent. of the pupils, and hypermetropia in 80 per cent.—the remaining 10 per cent. possessing normal eyes—in the advanced classes in high schools and in colleges, it has been found that the myopia has increased to 20 per cent., while the hypermetropia has decreased to 75 per cent.

Statistics also show that if children with defective eyes are weeded out of schools and their eyes carefully corrected by glasses, that the increase of myopia is checked and the retrogression of the eyes is greatly diminished. In view of these facts, a determined effort has been made by ophthalmologists within the past twenty years to make an examination of the eyes of all students obligatory, and in a number of cities in this country all the pupils in the public schools are subjected to some kind of an examination to determine at least the degree of visual acuity of each scholar. A much more careful test is made of the ocular condition of scholars in private schools, especially in this city, but so far as we are aware, the University of Pennsylvania is the only institution conferring a degree in which such examinations are made systematically.

Of the value of such tests there can be no doubt, as statistics will testify, for even though the examinations had demonstrated to but a dozen students that their eyes were defective, the importance of such tests could not be questioned; but when it is appreciated that 30.34 per cent. of the students who were examined had defective vision in one or both eyes, all doubts as to their propriety must be dispelled. Eight hundred and eighty-three students were examined in all. Of these, 640 were students in the college department, 108 in the medical, 81 in the dental, 51 in the law and 3 in the veterinary department. Of this total, 14.70 per cent. were noted as being myopic, while the remaining 85.30 per cent. were either hypermetropic or emmetropic.

In the comparison which was made to ascertain the influence of age and study on the refraction, it was found that among 633 students in the two lower classes, 87.25 per cent. were hypermetropic and 12.75 per cent. were myopic, while of 261 students in the upper classes, 80.25 per cent. were hypermetropic and 19.75 were myopic.

Five per cent. more of myopia was found in the professional department in scholars of a similar age than in the college department, this being doubtless accounted for by the fact that most of the scholars in the college come from private or city schools, where the eyes are properly protected, while the scholars in the professional schools come frequently from rural communities, where accurate refraction is impossible and the care of the eyes neglected. The average age of all the scholars examined was 21.4 years, and the statistics showed an increase of about 2.5 per cent. of myopia for each year during the four years of college life.

Of the students examined, 609 had full visual acuity in each eye, 94 had full visual acuity in but one eye, while 180 had subnormal vision in both. In this latter class, 180 students, possessing subnormal vision in both eyes, were thus under a decided disadvantage in the performance of certain forms of class-room work, irrespective of any possible ill effects to the eyes from uncorrected strain, while in the 94 students who possessed normal vision in but one eye, the student was perceptibly handicapped in the proper use of all scientific instruments. Three hundred and three students wore glasses; of these, 217 were hypermetropic and 86 myopic. Eighty-seven complained of headache. Of this number, 47 wore glasses and 40 did not. Of those complaining of headache, 7.59 per cent. had subnormal vision, while the remaining 92.41 per cent. had full visual acuity, and on this account did not suspect their eyes of being at fault.

Of the 883 students examined, 58, or 6.68 per cent., had spinal curvature or scoliosis, and this condition was found 48 times among hypermetropes and 10 times among myopes. Of the total number of students with spinal curvature, the vision of one eye was perceptibly lower than its fellow in 13.79 per cent., supporting the inference of many ophthalmologists that ocular errors may be responsible in many cases for this abnormality.

The figures which have just been given are only a few which have been compiled from the statistics deducted from the examinations, but they serve, in our opinion, to indicate the importance of including careful ocular tests as a part of the physical examination of every student, and to show the value of the advice which is offered regarding the correction of existing errors. As weak eyes are often associated with a physical condition which is below par, suitable exercise of a general nature is also insisted on for those who are so handicapped, and a determined effort is made by the department to enable such students to profit as much as is possible by their college careers. Violent exercises are forbidden myopes, and the endeavor is made in this class of subjects particularly to develop the chest and to impart a correct standing posture for the avoidance of scoliosis.

THE DANGER OF DUST AS A CAUSE OF TUBERCULOSIS

IN DOMESTIC HOUSEHOLDS, CLUBS, HOTELS, SCHOOLS AND CERTAIN OTHER ESTABLISHMENTS.*

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ST. LOUIS.

In a previous paper[1] I traversed to some extent the ground indicated by this contribution, but, as probably few Americans will see that paper in print, I take the liberty of borrowing from it to some extent as affording a text and illustration of what follows.

There is agreement among authorities that the sputum expectorated by consumptives, and becoming dried and powdered, constitutes the principal means by which the tuberculous infection is extended; the precise manner in which the recipient acquires it—whether by inhalation, ingestion or inoculation—being of secondary importance, but that pathogenic lodgment must necessarily

* Read before the Mississippi Valley Medical Association, Hot Springs, Ark., Nov. 6-8, 1906.

1. Read in the Section on State Medicine of the British Medical Association, Toronto, August, 1906, British Medical Journal, Sept. 15, 1906.

take place in one or more of these several ways. The seriousness of the situation is increased by the fact ascertained by competent observers that the vitality of the infecting germ retained within doors may endure unimpaired for several months.

This particular form of infection, then, being capable of, and adapted to, dissemination by air currents, is liable to be found within the average domestic domicile everywhere that the air-borne sputum can reach, and the methods in vogue for the care and treatment of interiors thus invaded, or those infected from within, instantly assume an aspect of importance for weal or woe that can not be gainsaid or idly set at naught.

The acceptance by the medical world of the truth of the discovery of the bacillus tuberculosis was spontaneous and significant, and on this foundation our practical work and professional faith have been securely builded for more than a decade. But, notwithstanding such acceptance, and the wide teachings that have followed by means of the public press, there still exists among people, presumably intelligent, an amount of ignorance on this subject, an indifference or inertia as to the observance of precaution and prevention that go to show that household customs have changed but little. In larger fields, as hotels, clubs, office buildings and the like, the methods pursued are often as unenlightened and dangerous as they were twenty or more years ago.

For a number of years it has been the lot of the writer to be in a position to observe at close range the practices pursued in the domestic administration of certain large clubs, hotels, etc.; as a result of such observation the conviction has grown that such places constitute a real seeding ground for tuberculosis among their members, guests and employés, chiefly through the inattention or incompetency of those charged with their physical care and business management.

Whether the conduct of household service generally has changed for the better in this respect to any perceptible extent I am unable to say; but the common broom and feather duster seem to be still wielded in residences and to hold sway there as the chosen emblems of that which is, at best, but a farcical performance in the domestic *ménage*.

The word farcical is used deliberately, for not only is the pretense of cleaning by broom and duster of [illegible] nature even to ordinary observation, but viewed in the light afforded by special knowledge of the nature of dust the situation changes and becomes most serious, for the tragedies of consumption follow fast on the heels of blind inefficiency or cheerful ignorance in the everyday dealing with what may be termed the "prince of the powers of the air" in its broad relation to human health and life.

In view of what is known of the bacillus tuberculosis, it is no more necessary to prove the reality of danger from flying infected dust than it is to demonstrate the multiplication table—sanitary observation, microscopical findings, laboratory tests and clinical experience are all in agreement here—hence the question of the hour is, How shall the perilous nuisance of dust-making and dust-raising within doors be abated?

One of the vices of American house-furnishing is the lavish spread of carpetings. These being fastened to the floors afford secure lodgment to all kinds of dirt conveyed by human or other agency, and in such position can not be cleaned, in any proper sense, by the ordinary domestic operations. Further harborage for dangerous mobile matters is found in hangings, curtains, upholstered furniture, etc.

It is through the crude, old-time attempts at so-called cleaning in such places that the chief sanitary offense is given, and direct danger to health and life arises, and in illustration a glance at some experiences, personal to the writer, may perhaps be permitted here.

INSANITARY METHODS IN PUBLIC PLACES.

Some years ago in St. Louis an athletic club for men was formed, a special appeal being made to the younger men to join for the sake of their health, the widely announced aim of the organization being the upbuilding, development and strengthening of the body by all manly games, athletic sports and exercises. The response was encouraging and a membership mounting into the thousands was secured.

A large building was hired for a club house and elaborately furnished in the conventional way, even the dining room floor being heavily carpeted, as were also a large number of sleeping rooms intended for members and guests. The institution was well patronized, and carpets, etc., soon began to show evidence of use and wear.

As a member I occasionally found it convenient to take breakfast there, and on such occasions was too often confronted by the unpleasant fact that the domestic ordering of the club had not been completed before it was opened for business. In short, the sweeping of carpets and dusting of furniture went on alongside of tables where meals were being served.

Respectful representation to the management against this practice availed nothing, and this was followed by emphatic protest and vigorous remonstrance, which was received with equal unconcern. This disparity between the loudly trumpeted purposes of the club and this confirmed dangerous feature of its housekeeping, being too glaring for reconcilement, resignation of membership was the only recourse remaining, and this was quickly put into effect.

The paradox was thus presented of an institution catering especially to a younger generation, conducted by average business men, and ostensibly established for the promotion of physical health, employing through dull ignorance or perverse inattention methods of internal management which in disease-producing influence must largely defeat its avowed objects and subject its heedless or unsuspecting patrons to most serious peril—one hand practically undoing the work of the other.

That such a situation is not exceptional, personal experience and observation has confirmed in another club of one thousand members, made up of business and professional men, the women and children of their families being also admitted to its social privileges.

Here the same antiquated and pernicious methods are adhered to, the establishment scarcely ever being opened clean and in order, but confusion, dirt and danger prevailing on the principal floors, sometimes until an advanced hour in the morning. Successful business men compose its board of directors, but the reign of ignorance respecting such a simple health proposition is as absolute as it was in the same institution a quarter of a century ago.

Without specifying particulars, the same conclusion has been reached with respect to hotels, office buildings and business concerns where extensive carpeting is in evidence. The twin scepters of the domicile, broom and duster, seem to be undisputed and securely holding their place.

INSANITARY METHODS IN THE HOME.

The limitations of time and circumstance do not permit any extended notice of the morbid developments observed among employés in atmospheres of daily domestic dust. In those places, however, in which medical scrutiny has been exercised longest and most closely the confident statement can be made that, while many contributory influences are involved, yet the pleurisies, pneumonias, bronchial catarrhs and cases of tonsillitis and influenza occurring among patrons and help find there a sufficient explanation in the local conditions, and undoubtedly these ailments prepare the way for the tuberculous infection that easily and commonly follows.

This infection is spoken of by some as a disease prone to originate in the poorer quarters of a city, but its presence there, I am persuaded, is due to the fact that many wage-earners in clubs, hotels and like places are drawn from homes in such localities. Medical observation shows that after a time physical deterioration takes place among those employés most exposed to dust, and this is usually evidenced by coughs and other evidence of respiratory ailment.

That insidious peril from such cause can lurk in the often luxurious furnishings of places of the kind mentioned is hardly thought of by those most liable to be affected, but the contention that they are real and formidable seeding places for tuberculosis can, I believe, be established as truth on sufficient examination by any one so disposed.

MODERN METHODS OF CLEANING.

If so much be conceded, the question then recurs as to the necessary measures of prevention, and it will readily be seen that these require the total banishment of broom and duster or any other implement or device by which dust is set afloat. If carpetings are to be retained, the adoption of mechanical appliances must follow, by the use of which no flying matter will be allowed to escape, this, if necessary, to be supplemented by the wiping of exposed surfaces and furniture with soft cloths.

The use of the vacuum or pneumatic method of cleaning in every hotel, club, office building, theater, church, school and business establishment should be made compulsory by law. This provision as a sanitary adjunct has become just as necessary a part of the house equipment as are those similarly supplied for heating, for ventilation, for fire protection or fire escape.

As to changes needed in ordinary methods in private houses to meet the demands of wholesome living as framed in the light of to-day, that is a domain concerning which others must speak, but it would appear that amendment in this direction is a very necessary part of the movement toward better health. This, however, is a phase of the problem that, first and last, lodges itself with the housekeepers of all civilized lands, and on them must rest the responsibility for its final and rightful determination.

The city mentioned in which are situated the clubs, etc., whose delinquencies in a certain respect have been pointed out, is said to be the most representative of all American municipalities, in the sense that the different races and nationalities composing its population are more evenly blended than in any other place of nearly the same size; hence, sanitary faults existing there would probably be found present in other cities also. The indoor dust problem, therefore, becomes one of more than local importance and must concern peoples and populations everywhere who may be liable to fall under the influence of similar unwholesome conditions, becoming in fact national, if not international, in scope.

It has been written of ancient peoples that, in times of great public stress or sore calamity, they would seek the altars of their respective religions and anxiously demand of the priests, wherein they had offended the gods, in order that, by suitable sacrifice or offerings, atonement might be made for transgressions, and the offended deity be thus placated and no longer visit on them his wrath. And the people of to-day, here and elsewhere, may well ask wherein they have offended when it is remembered that one-tenth of all deaths occurring in civilized lands are due to tuberculosis, and bestir themselves to the work of expiation for manifold transgressions of the plain laws of health which entail such a heavy punishment.

SUMMARY.

1. Efforts toward the eradication of human tuberculosis will fail which do not take full account of household dust as a factor in the dissemination of that disease.

2. Scientific tests have shown that the seeds of pulmonary tuberculosis, harbored within doors in the dried state, are capable of retaining their effective vitality for prolonged periods of time.

3. Any method or procedure employed in inhabited buildings which causes dust to be disseminated must be considered as tending to spread the seeds of consumption.

4. Hotels, clubs, theaters, office buildings, schools, churches and business establishments generally should be required by law to introduce and operate dustless methods of cleaning; this part of their mechanical equipment being as necessary as provision similarly made for warming, ventilation and for fire protection and fire escape. The employment of dustless methods in private residences is urged as being equally imperative for the control and suppression of all forms of tuberculous disease.

THE VALUE OF SULPHATES IN CARBOLIC-ACID POISONING.*

TORALD SOLLMANN, M.D., AND EDGAR D. BROWN, PH.D.
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HISTORICAL DATA.

The treatment of phenol poisoning by sulphates dates from the observation of Baumann,[1] in 1876, that a considerable proportion of the phenol is excreted in the urine as the practically harmless phenol-sulphonic (sulphocarbolic) acid, $C_6H_4(OH)SO_3H$, or, rather, as the salts of this acid with the urine bases. Baumann suggested that this constitutes a natural mechanism for the disintoxication of phenol. Since only a part of the phenol is excreted in this form, it seems reasonable to suppose that the quantity of sulphate at the disposal of the body was not sufficient to combine with all the phenol, and that the efficiency of the mechanism could, therefore, be increased by the administration of sulphates. Baumann tested this suggestion on two dogs, painting the phenol on the skin. The result was in agreement with the theory, although it was not sufficiently rigorous to be conclusive. Sonnenburg,[2] in 1878, reported favorably

* This is the second of a series of studies on the treatment of phenol poisoning. The first paper, on the value of alcohol, by T. W. Clarke and E. D. Brown, appeared in THE JOURNAL, March 17, 1906.

* From the Pharmacological Laboratory of Western Reserve University.

1. Arch. f. d. gesam. Physiol., 1876, xiii, 285.
2. Deutsche Ztschr. f. Chir., 1878, ix, 356.

on the clinical use of sulphates in the subacute poisoning resulting from the external application of the phenol.

The next work was done by Cerna[3] in 1879 and by Cafrawy[4] in 1881. Both experimenters worked on animals and formed a favorable judgment, but Tauber[5] rejects their results as absolutely valueless because of errors of technic and interpretation. Tauber, in 1895, published the first reliable experimental data on the reputed antagonism. He injected a just fatal dose of phenol subcutaneously into rabbits, following this by oral, subcutaneous or intravenous injection of sodium sulphate. His three experiments were purely negative: the animals died in from fifteen minutes to one hour, just as they would have done without treatment. He suggests in explanation that the phenol does not combine in the body with sulphates, but only with sulphur in lower stages of oxidation; and in support quotes a somewhat more favorable effect from the administration of sulphites—too small, however, to be of any therapeutic significance.

The subject was taken up independently, at about the same time (1894), by Marfori,[6] who worked with different methods and arrived at different conclusions. Marfori used dogs and injected the solutions intravenously, but so slowly that no acute effects were produced until death resulted, the injections lasting from four and one-half to nine hours. He determined in this way the total lethal dose and the amount of combined sulphate excreted in the urine; the latter as a measure of the amount of phenol which had entered into the harmless combination. Into ten of his animals he injected phenol alone, into seven a mixture of phenol and ammonium sulphate. His results showed that when phenol alone is injected under these conditions from one-fourth to one-half is excreted as the sulphate. When ammonium sulphate is injected at the same time, more phenol can generally be injected and a greater amount (up to three times as much) is excreted as the sulphonate. The tolerance, however, is limited; indeed, two of his animals died with practically the normal fatal dose; in no case was anything like the total injected quantity of phenol excreted as the sulphonate.

The conclusions of Tauber and Marfori, however they differ in other respects, agree in assigning a very small value, if any, to the sulphate treatment. This agreement, however, seems to have been less impressive than the differences, for we find that many of the recent textbooks give prominent favorable mention to the sulphate treatment. We also started our experiments with a favorable bias, based on the superficial impressions of some class experiments and on some reported clinical results.

SUMMARY OF THE AUTHORS' RESULTS.

In view of the prevailing contradictory opinions, we shall detail our experiments rather fully; but for those who are not interested in these details we may premise the conclusion that sodium sulphate, however administered, is not a chemical antidote in acute phenol poisoning. This conclusion follows very clearly from our results, namely:

1. Chemical combination between phenol and sulphate does not occur outside of the body, neither in neutral nor in weakly acid nor in weakly alkaline solution. This excludes at once all possibility of chemical combination in the alimentary canal or in the blood.

2. The blood pressure and convulsive effects of phenol are not modified in the slightest degree by intravenous injection of liberal quantities of sodium sulphate under any of the following conditions:

(a) When phenol, even in sublethal doses, is introduced into the stomach, and is followed within fifteen minutes by intravenous sulphate injection.

(b) When sublethal doses of phenol are injected intravenously, and followed promptly by the sulphate.

(c) When sublethal doses of phenol are injected intravenously after the sulphate injection.

(d) When an incubated mixture of phenol, sodium sulphate and sodium bicarbonate is compared with a solution of phenol in sodium chlorid solution.

(e) When the sulphate is injected immediately after cardiac stoppage from lethal doses of phenol.

DETAILS OF THE RESULTS.

To answer the question whether or not phenol sulphonate is formed outside of the body under the conditions which obtain in poisoning, the mixtures were allowed to stand for the specified time, the free sulphate was precipitated with barium chlorid, the mixture filtered, and any combined sulphate sought for by boiling with hydrochloric acid and adding barium chlorid. The result was uniformly negative. The following mixtures were tried:

Five c.c. of 95 per cent. phenol plus 95 c.c. of 1.9 per cent. Na_2SO_4, standing 5 minutes. The same mixture, standing 24 hours.

Five c.c. of 95 per cent. phenol plus 95 c.c. of 2 per cent. Na_2SO_4 plus 0.4 per cent. HCl, standing 24 hours.

One gm. phenol, 4 gm. Na_2SO_4 + 10 H_2O, 0.03 gm. $NaHCO_3$, 100 c.c. water, incubated for 24 hours at 38° C., then 6 days at room temperature.

Animal Experiments.—The results of the chemical experiments left open the possibility that the phenol and sulphate might combine in the body as a result of ferment activity, or within the cells. Animal experiments were necessary to decide this question. These we attempted to shape so as to imitate as closely as possible the most favorable conditions for treatment in acute poisoning. In view of the rapid absorption of phenol, the method of Marfori, extending the injection over many hours, appeared to us ill adapted to answer the question. We, therefore, introduced the poison and antidote rapidly. In investigating antagonism, one may either concentrate the attention of the sum total of the deleterious effects culminating in death, i. e., one may determine the minimum lethal dose, or, secondly, one may select one or several easily observable phenomena produced by sublethal doses. The former method is generally the more satisfactory and has been adopted by our predecessors. It is unsatisfactory, however, in the case of phenol, since the fatal dose per kilo of body weight varies, according to Marfori, with the size of the animal, and, according to our observations, acute death with intravenous injection depends altogether on the rapidity with which the drug is introduced. The blood pressure phenomena and the convulsive twitchings, particularly the former, are, on the other hand, perfectly satisfactory.

The experiments were made on anesthetized dogs by the usual technic. The blood pressure tracings were taken from the carotid artery by a mercurial manometer. The intravenous injections were made into the cardiac end of the femoral vein. The phenol when

3. Medical Times, Philadelphia, 1879, ix, 592.
4. Thesis, Paris, 1881.
5. Arch. f. exper. Path. u. Pharm., 1895, xxxvi, 197.
6. Arch. Ital. de Biol., 1894, xxii, 204.

administered by stomach tube was undiluted, but was washed down with a small quantity of water; when injected intravenously it was reduced to a 1 per cent. or 0.5 per cent. solution with 0.9 per cent. sodium chlorid. The latter was also used for control injection. The sodium sulphate solution contained 1.9 per cent. of the anhydrous salt.

PHENOL BY STOMACH TUBE, SULPHATE INTRAVENOUSLY.

Dog 11, tracings 30 and 31: Vagi cut, 1 c.c. of 95 per cent. phenol per kg. of body weight into stomach. Blood pressure fell immediately, descending 78 mm. of Hg (from 138 to 60) in 4 minutes. Remained at this level. Fourteen minutes after phenol, injected 15 c.c. of sodium chlorid solution per kg. into femoral vein. Excursions slightly increased, mean pressure unaltered. Between 15 and 25 minutes after the phenol, injected 25 c.c. of sulphate solution per kg. Slight temporary increase of excursions, mean pressure not affected up to 75 minutes, when the experiment was stopped.

Dog 13, tracings 34 and 35: One c.c. of 95 per cent. phenol and 1 c.c. of alcohol per kg. by stomach tube. Blood pressure fell 61 mm. in 6 minutes (from 126 to 65). Three intravenous injections of NaCl, each of 12 c.c. per kg., at one-minute intervals, the first 6 minutes after the phenol. The blood pressure showed a very slight rise (14 mm.), each injection caused some increase of the excursions. Four intravenous injections of Na_2SO_4, each of 12 c.c. per kg., the first 13 minutes after the phenol, the second 16 minutes, the third 20 minutes, the fourth 55 minutes. Each injection caused a slight rise of pressure (6 to 10 mm.) which passed off within a minute after the injection. The mean pressure was 60 mm. at the end of the experiment, 58 minutes after the injections of the phenol.

Dog 14, tracing 36: Phenol and alcohol, each 0.5 c.c. per kg. by stomach. In 7 minutes the pressure had fallen 34 mm. (from 108 to 74). Intravenous NaCl, 11 c.c. per kg., 11 minutes after the phenol. No effect. Two injections of Na_2SO_4, each 11 c.c. per kg., the first 14, the second 15 minutes after the phenol; no effect. The pressure continued to decrease gradually, being 60 mm. at the end of 30 minutes.

These experiments presented the most ideal conditions for the sulphate treatment: Intravenous administration of the sulphate in liberal quantity (from 22 to 48 c.c. of 1.9 per cent. per kg.) within a short time (13 to 15 minutes) after the phenol, the quantity of the latter but slightly exceeding the fatal dose in two of the dogs, and being distinctly less in the third. Notwithstanding these favorable conditions, the immediate effect of the sulphate is practically negative and does not differ in any respect from that of the sodium chlorid by which it was preceded. Nor was there any evidence of any later benefit, for the blood pressure showed no tendency to recover in from 30 to 75 minutes, whereas, after gastric lavage, Clarke and Brown noticed improvement, generally in from 15 to 34 minutes.

INTRAVENOUS INJECTION OF SUBLETHAL DOSES OF PHENOL FOLLOWED BY SULPHATE.

Dog 1, tracing 2: Five injections of phenol, each 0.01 gm. per kg., as 1 per cent. solution in 10 per cent. alcohol at one-minute intervals (total, 0.05 gm. per kg.). Each injection caused a slight fall (about 15 mm.). There was complete recovery after the first 2 injections, then this was incomplete, so that the average pressure had fallen 11 mm. (from 83 to 72) after the last injection. Four intravenous injections of 1.25 c.c. per kg. of the sulphate solution, given at short intervals, had no effect to the end of the experiment.

Dog 4, tracings 16 and 17: 0.09 gm. per kg. of phenol as 1 per cent. solution, distributed over 4 injections. Both vagi were divided. The pressure recovered to 90 mm. (original pressure, 98 mm.). Twitchings were present after the first injection (0.05 gm. per kg.). Five injections of sulphate, each 5 c.c. per kg. (total, 25 c.c. per kg.) were given within 10 minutes. The pressure rose during the injection, but at the end returned to the previous level. Marked convulsive movements were noted.

Tracing 18: 0.05 gm. per kg. of phenol as 1 per cent. solution. The pressure fell at once 25 mm. Within one minute 10 c.c. per kg. of the sulphate was injected, followed by 5 c.c. per kg. in one minute and again in 6 minutes. The blood pressure recovered steadily, just as it would do without the sulphate, the injections making no impression on the curve.

Dog 15, tracing 38: 0.025 gm. of phenol per kg. as ½ per cent. solution. The pressure fell at once 50 mm. (from 140 to 90), then started to recover. The injection of 15.6 of sulphate solution per kg. produced no impression on the curve. Twitching was observed after the first injection. The pressure returned to the original in 7 minutes.

Dog 17, tracing 44: 0.01 gm. of phenol as 1 per cent. solution. Pressure fell 25 mm. and recovered. Eleven minutes later, second injection of phenol, 0.05 gm. per kg., fell 30 mm. and recovered. Twenty c.c. of NaCl solution per kg. caused no change in the curve. Within 30 seconds after the second phenol injection, marked muscular twitching appeared, ceasing again in less than 5 minutes. A third phenol injection, 0.05 gm. per kg., caused marked twitchings in 30 seconds and 40 mm. fall of pressure (from 120 to 80). One and one-half minutes after the phenol, when the pressure had already begun to recover, injected 20 c.c. per kg. of sulphate solution. This did not affect the curve of mean pressure, although the excursions were considerably strengthened and slowed. The twitchings practically ceased within 5 minutes, i. e., about the same time as without sulphate.

These experiments bear out the conclusions derived from the gastric administration: The sulphate has not the slightest influence on the recovery of the blood pressure after sublethal doses of phenol.

INTRAVENOUS INJECTION OF PHENOL AFTER SODIUM SULPHATE.

Dog 4, tracing 18: The animal received 0.09 gm. per kg. of phenol in divided doses, then 25 c.c. per kg. of sulphate as described above. The blood pressure returned to the original level. About 45 minutes after the sulphate, injected 0.05 gm. per kg. of phenol as 1 per cent. solution; the pressure fell 25 mm. Sulphate was again injected, 20 c.c. per kg. When the pressure had recovered, 5 minutes after the sulphate, injected 0.05 gm. per kg. of phenol, usual fall of pressure.

Dog 15, tracing 39: The animal received 0.025 gm. per kg. of phenol, followed by 15.6 c.c. per kg. of sulphate solution. The pressure fell 50 mm. and returned to the original level. Eleven minutes after the sulphate, injected phenol 0.025 gm. per kg. The fall of pressure was 60 mm., i. e., somewhat greater than the fall produced by the same dose of phenol before the sulphate injection.

Dog 17, tracing 45: The animal received 0.01 and 11 minutes later, 0.05 gm. per kg. of phenol, and then a third injection of 0.05 gm. per kg., followed by 20 c.c. per kg. of sulphate solution. The first injection caused a fall of 25 mm., the second of 30 mm., the third of 40 mm., with complete recovery of pressure in each instance. Twenty-six minutes after the sulphate, injected phenol, 0.05 gm. per kg.; the pressure fell 45 mm. The convulsions occur as before the sulphate injection.

These experiments show that the presence of sulphate in the blood, before the phenol is injected, do not mitigate in the slightest degree the effects of phenol on the circulation, nor its convulsant action.

COMPARISON OF THE PHENOL EFFECTS IN A MEDIUM OF SODIUM CHLORID AND ALKALINIZED SODIUM SULPHATE.

To secure the closest possible approximation of physiologic conditions to the requirements for combination of phenol and sulphate, a mixture of 10 gm. of phenol, 40 gm. of crystallized Na_2SO_4, 0.3 gm. of $NaHCO_3$ and 1,000 c.c. of water was incubated at 38° C. for 25 hours, then set aside at room temperature for another day. In the first experiment this solution was injected alone,

in the second alternately with a solution of phenol in 0.9 per cent. NaCl, containing the same quantity of phenol (1 per cent.).

Dog 28, tracing 67: Vagi divided. Blood pressure 90 mm. Injected 0.03 gm. of phenol per kg. in alkaline sulphate medium. Pressure fell 30 mm., recovered promptly and rose to 95 mm. Six minutes after the first dose, injected 0.02 gm. phenol per kg. in alkaline sulphate; fell 40 mm. and in 15 minutes the pressure had returned to 90 mm. Thirty minutes after the second dose, injected 0.05 gm. per kg. in the sulphate solution; fell 70 mm. with complete recovery. In 33 minutes the pressure had risen to 105 mm. Thirty-seven minutes after the third dose, injected 0.075 gm. per kg. in the sulphate solution. The pressure fell to 20 mm., respiration and heart beat ceased.

Dog 29, tracings 68 and 69: Vagi divided. Blood pressure 135 mm. Injected 0.025 gm. of phenol per kg. in NaCl, intravenously; pressure fell 43 mm. and recovered to 110 mm. Fourteen minutes after the first dose, injected 0.025 gm. per kg. of phenol in alkaline sulphate; pressure fell 48 mm. and recovered to 111 mm. Seventeen minutes after the second dose, injected 0.05 gm. per kg. of phenol in the chlorid; pressure fell 51 mm. and recovered to 110 mm. Fifty minutes after the third dose, injected 0.05 gm. per kg. of phenol in alkaline sulphate; pressure fell 50 mm. and recovered to 110 mm.

These results show that an incubated mixture of phenol with sodium sulphate and alkali produce precisely the same effects as a simple solution of phenol with sodium chlorid, quantitatively as well as qualitatively.

SULPHATE INJECTION AFTER LETHAL DOSES OF PHENOL.

Dog 4, tracing 18: The animal received 0.09 gm. of phenol per kg. intravenously, divided into 4 doses; the pressure recovered. In an hour and a half injected 0.15 gm. per kg.; the pressure fell to 30 mm., the heart beats were weak and slow; marked convulsions. Two minutes after the phenol injected 20 c.c. per kg. of sulphate solution; no improvement.

Dog 15, tracing 39: The animal received intravenously 0.025 gm. of phenol per kg.; the pressure recovered. Thirteen minutes after this first administration again injected phenol intravenously, 0.025 gm. per kg.; the pressure fell 60 mm. (from 127 to 65). As soon as it showed a tendency to recover, i. e., within one minute, again injected phenol, 0.0125 gm. per kg. Seven such doses were injected in 5 minutes, resulting in a very gradual fall of the mean pressure of 18 mm. (from 65 to 47). Three injections of phenol were now made, 30 seconds apart, the first of 0.025, the second and third, each, of 0.04 gm. per kg. These caused a further gradual fall of 16 mm. (from 47 to 31 mm.) when the heart suddenly stopped. Sulphate was injected at once, 15 c.c. of the solution per kg., and this was followed in one minute by artificial respiration and vigorous cardiac massage. Two further injections of the sulphate solution, of the same dose, were given within 5 minutes. The animal did not revive.

Dog 16, tracing 42: In the course of 20 minutes this animal received, intravenously, 3 injections of phenol, each of 0.025 gm. per kg. The blood pressure returned to the original (125 mm.). Half an hour after the last dose a second series of phenol injections were started, 5 doses of 0.025 gm. per kg. being given within 30 minutes. Ten minutes after the last injection the pressure stood at 85 mm., a permanent fall of 40 mm. The third series of injections was started, the injections being repeated at minute intervals, or as soon as the pressure showed a tendency to rise. The first injection, 0.0275 gm. per kg., lowered the pressure 45 mm. The second, third and fourth injections (0.0275, 0.0275, 0.015 gm. per kg.) caused a gradual further fall of 15 mm (to 25 mm.). Within 8 minutes, the pressure had returned to 40 mm. An injection of 0.05 gm. per kg. caused it to fall again to 25 mm. Another dose of the same size, injected within one minute, lowered the pressure to 18 mm., at which it remained for 5 minutes, when the last injection of 0.05 gm. per kg. was made. This caused almost immediate sudden stoppage of the heart. Artificial respiration, vigorous cardiac massage and the injection of 33 c.c. per kg. of sulphate solution caused resuscitation of the heart, but the respiration remained paralyzed.

Dog 17, tracing 45: The animal had received intravenously 3 doses of phenol of 0.01, 0.05, 0.05 gm. per kg., distributed over 30 minutes. Half an hour after the last dose the pressure was rather higher than at the start (134 mm.). A fourth dose of phenol, 0.05 gm. per kg., produced the usual fall of pressure (45 mm.) followed by recovery of the pressure. During the recovery, however, there was strong vagus stimulation, and 4 minutes after the injection the heart stopped suddenly, evidently due to excessive vagus stimulation. Immediately injected 25 c.c. of sulphate solution, practiced cardiac massage; no recovery.

The results show that sulphate injection after stoppage of the heart is no more effective than sodium chlorid injection.

DISCUSSION.

Our results as sketched in the preceding summary are conclusive in showing that sulphate injections do not influence the course of acute phenol poisoning appreciably under the conditions of our experiments. When the phenol was injected intravenously, the animals promptly recovered from the severe fall of blood pressure and from the convulsive twitchings, but the recovery was equally prompt without any treatment. When the clinical conditions were imitated by giving larger doses of phenol by stomach and the sulphate intravenously, the latter caused no marked permanent improvement, no tendency to recovery. There was in some cases an increase of the cardiac excursions and sometimes a slight temporary improvement of blood pressure, but these effects were insignificant in degree and duration and were obtained equally by corresponding injections of sodium chlorid; they were, therefore, expressions of saline stimulation and not of chemical antagonism.

We are forced to accept the same explanation for certain clinical cases which have been communicated to us informally from various sources. Of these we have no exact records, but they appear to agree in the essentials. In advanced cases of phenol poisoning the intravenous or subcutaneous sulphate injections produced no effect. In less severe cases, on the other hand, the improvement seemed very striking, the patient often recovering consciousness while the injection was being made. The very success in these instances excludes the possibility of a chemical combination, for all investigators agree that the combination of the phenol could not be effected in so short a time. The improvement must have been due to saline stimulation.

Our negative results agree with those of Tauber, who also worked with acutely fatal doses; their apparent contradiction to the conclusions of Marfori is doubtless to be referred to the slower introduction of the poison adopted by this investigator. He succeeded in demonstrating some increase of the combined phenol in the urine; but, as he emphasizes, this combination occurs so slowly that he was obliged to inject the phenol so gradually that it produced no symptoms for from 6 to 9 hours. This resembles the conditions of chronic phenol poisoning rather than those of the acute form, in which the symptoms set in with startling rapidity, and which practically runs its course, as a rule, within two or three hours

The compilation of Clarke shows that, with gastric lavage, six out of seven patients had recovered consciousness within this time. With this in mind, it appears quite useless to administer an antidote which be-

comes effective only after four hours or later. In a limited number of cases, death occurs from phenol after a longer period, with intervening partial recovery; but, considering the usual rapid course of the poisoning, we are inclined to refer this to indirect effects of the acute action, such as the local effects or the profound nervous shock, rather than to a delayed action of the retained phenol. Even in these cases, therefore, we would expect little benefit from the chemic antagonism. Whether or not it is of any use in genuine chronic poisoning, our experiments do not answer.

On the other hand, we would emphasize the fact that the saline stimulation from intravenous or subcutaneous injections appears to be of distinct value clinically, although it was not very striking in our animal experiments. Since this is a harmless procedure, it deserves trial in conjunction with the lavage. The sulphate has generally been used in the quantity of from 0.5 to 1 liter of a solution containing 2.3 per cent. of the anhydrous or 4.6 per cent. of the crystalline salt, employing the usual technic of saline injection. We know of no data showing whether it possesses any advantage over ordinary saline (sodium chlorid) solution. The administration of sodium or magnesium sulphate by the alimentary canal would, of course, be useless for this purpose, especially as these salts are scarcely at all absorbed.

SIMPLE ULCER OF THE BLADDER.

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Relatively few well-described instances of simple ulcer of the bladder have been recorded, but these are sufficient to establish the existence of such a condition.

It may be defined as a single non-inflammatory ulcer located in the mucous membrane of the bladder, which occasionally penetrates the entire wall.

The condition is probably caused by a local disturbance in, or complete blocking of, the terminal arteries or by an interference with the trophic nerves. Infection of the bladder never produces it. It resembles in appearance a gastric ulcer and probably has a somewhat similar etiology.

I have observed two cases, the histories of which are as follows:

CASE 1.—A man, aged 54, previous health excellent; had a mild attack of gonorrhea 8 years ago, no complications.

Present Illness.—For eight months he has suffered from a slightly increased frequency of micturition, attended by burning and discomfort. Very frequently during the day, independently of micturition, he has felt an uneasy painful sensation deep in the perineum. At the present time he urinates every two or three hours during the day and occasionally at night; the pain and burning during urination have increased and the local discomfort has become greater, occasionally being felt for days at a time. He describes it now as a burning or tickling sensation which is felt mainly in the dependent urethra. Other than this there is no disturbance.

Examination.—Large, well-built, well-developed man. Heart and lungs negative, abdominal organs negative; external genitalia normal. No material can be expressed from the meatus on pressure; the prostate gland on palpation is practically normal; the seminal vesicles are normal.

Urinalysis.—Pale straw color, slightly turbid; a number of fine granular particles and small shreds; acid; specific gravity 1.020; no albumin, no sugar. Microscopic examination showed numerous pus cells, some bladder epithelium, no casts, a few bacilli and cocci, no tubercle bacilli.

Cystoscopic Examination.—Endoscopic examination disclosed a normal urethra. With the cystoscope there was found a small round ulcer on the left lateral wall of the bladder about 2 cm. behind the orifice of the left ureter. It was sharply punched out; the immediate edges were smooth and regular; the base was made up of a red, fairly firm-looking, granulation tissue, over which was a thin coating of a fibrinous exudate. The ulcer extends to the submucous tissue, but not beyond it. The adjacent mucous membrane was slightly injected, but otherwise presented no change. The remaining mucosa was entirely normal; there was not the slightest evidence of a tuberculous process. The ureteral orifices looked healthy and emitted a clear urine. The capacity of the bladder was normal.

Treatment.—The patient was put on nitrate of silver irrigations, 1 to 10,000, twice a week. His condition is improving.

In the following case the patient was seen in consultation only once and probably presented an example of a simple ulcer which was well advanced toward healing.

CASE 2.—Male, aged 27; previous history, except for a remote attack of gonorrhea, entirely negative. Three years ago the patient began to notice blood in the urine occasionally, and later suffered from increased frequency in micturition and some pain. At the same time he had some discomfort and a burning sensation in the perineal and suprapubic regions. These symptoms gradually became worse and the bleeding more pronounced. During the last six months micturition has been compulsory every two or three hours during the day and from three to four hours during the night, although in the last two or three months this symptom has begun to improve and the bleeding is less frequent. The general health has not suffered.

Examination.—The patient has the appearance of being in excellent health. Heart, lungs and abdominal organs negative. Prostate and urethra negative.

Urinalysis.—Pale lemon, slightly clouded urine; acid, specific gravity 1.018; no albumin, no sugar. Microscopic examination showed leucocytes, some mucus and bladder epithelium.

Cystoscopic Examination.—On the right side of the lateral surface of the bladder, slightly behind the ureteral orifice, there was an irregular, ulcerated surface about the size of a ten-cent piece; the edges formed a somewhat irregular outline and extended here and there as fine projections into the ulcer. The edge in the main was smooth and sloped gradually to the granulating surface, so that it might be said to be almost on a level with it. It was of a bluish color, and appeared to be covered by an overgrowing epithelium. The base was smooth; in spots here and there the granulation tissue projected above the surface. In other words, the ulcer presented the ordinary picture seen in a healing process. The remaining mucous membrane was slightly injected but otherwise appeared to be normal.

While the above case may not be an example of a simple ulcer, I found no evidence of the ordinary causes (tuberculosis, for example) to explain its presence. The patient had been using and continued to use silver nitrate irrigations. Some months later he wrote that he was well.

Simple ulcer of the bladder has been very carefully observed and described by Fenwick, Le Fur, Castaigne and others.

PATHOLOGY.

Two types are described: 1, The simple, chronic and solitary ulcer; 2, the acute, perforating ulcer. The first type is usually found as a single ulcer, situated, as a rule, on the posterior wall of the bladder. It varies in size from 2 mm. to 3 cm. in diameter. It is usually circular with clean-cut edges. The base is covered with a red, not exuberant, granulation tissue over which there are scattered small particles of fibrin. The edges are only slightly indurated, and the immediately surround-

ing mucosa is slightly injected; otherwise the mucous membrane is entirely normal.

Microscopic Examination.—According to a very careful histologic examination of such an ulcer made by Castaigne, it shows, first, a layer of complete necrosis which forms a thin coating over the surface of the ulcer. Under this there is a zone of ordinary granulation tissue made up of lymphoid cells, dilated blood vessels, leucocytes and connective tissue. Immediately outside of this zone, in the specimen examined, there was definite thrombosis in the small blood vessels. The epithelium of the mucous membrane immediately next to the ulcer showed degenerative changes. Outside of this the cells were normal, but there was some injection of the underlying blood vessels. Castaigne made very careful bacteriologic examinations, both in smears and in stained sections, but found no organisms of any kind.

In the second period the ulcer becomes larger and there is an infection with pyogenic organisms which gives rise to a more or less acute cystitis. According to Fenwick, there is a tendency toward the disposition of lime salts over the surface of the ulcer which is sometimes so extensive that it produces a secondary traumatic ulceration on the opposite bladder wall.

In the third stage there is an increase in the degree of cystitis and a deep infiltration of the inflammatory process into the musculature which produces a widespread fibrous change and a contraction of the whole organ, thus interfering with its contractile power.

Microscopically, in both the second and third stages, there is seen the ordinary inflammatory process which is brought about by pyogenic organisms.

The second type, or perforating ulcer, is relatively rare, but a number of instances have been observed and accurately described. In this form there is a marked tendency toward deep erosion, and as a consequence the whole wall and the immediately adjacent structures are perforated. This type does not go on to the production of cystitis, for the reason that the perforation usually occurs very early and produces death or calls for an operation.

In Castaigne's case the autopsy disclosed a perforation through the posterior wall of the bladder, 2 cm. in width, and through the base of the ulcer. There were three liters of blood in the peritoneum; the genitourinary tract was otherwise normal. Bartlett, in 1876, at autopsy, found a perforating bladder ulcer which was very similar in appearance to a gastric ulcer. In Johnson's patient there was a simple ulcer, three inches in diameter, from which a rupture of the bladder had occurred. Caufford (1900) reports a death from perforation of the bladder. The ulcer was situated in the upper posterior wall and was similar to a gastric ulcer.

ETIOLOGY.

The etiology of simple ulcer of the bladder is obscure. The lesion is probably dependent on a local disturbance in the blood vessels or trophic nerves and bears no relationship to any form of cystitis. Le Fur, in an exhaustive research, succeeded in producing a localized ulcer of the bladder by injecting organisms into the blood of rabbits and then injuring the bladder wall, but this condition would hardly correspond to a simple ulcer. He speaks of three causes: vascular, trophic and infective. The vascular type, according to him, is produced by a local thrombosis in the vessels of the bladder, which is induced by some general systemic infection such as scarlet fever, diphtheria, typhoid fever and mercurial poisoning. The trophic ulcers are occasionally seen in some form of tabes and paralysis.

SYMPTOMATOLOGY.

The three prominent symptoms, as mentioned by Fenwick, are increased frequency of micturition, pain in the penile portion of the urethra and hemorrhage. For the sake of clearness the symptoms will be discussed according to the different stages.

In the first stage there is usually some disturbance in micturition; the act is more frequent and the passage of the water is attended by a burning sensation, particularly marked toward the end. Not infrequently more or less discomfort is felt in the penis. The urine does not show any very marked change, but close examination will show some pus, necrotic débris and exfoliated epithelium.

In the second stage a cystitis begins and there is an exaggeration of all the symptoms. Micturition is more often demanded and is painful, the sensation not being relieved until several minutes after the act is finished. Local discomfort in the suprapubic and perineal regions is more or less continuous; the pain in the penile urethra becomes much greater and is sometimes extremely severe. The urine is more purulent and contains more epithelium and débris; the blood, too, is in larger amount.

The bladder in the third stage loses its expulsive power and is unable to empty itself entirely, not infrequently calculi are formed and these, together with a putrid urine, greatly aggravate all the symptoms. If the condition is not relieved, the patient is gradually worn out by exhaustion or dies from an ascending renal infection.

In the second type, the acute perforating ulcer, there are no symptoms whatever until perforation has taken place. In such instances blood usually appears in the urine in either small or large amounts and in a few hours signs of perforation are present. Chauffard reports the case of a man of 26, who suddenly complained of a severe and colicky pain in the left lumbar region. There was hematuria, which increased in spite of treatment; signs of internal hemorrhage developed and the patient died after five days. At the autopsy a large quantity of blood was found in the peritoneum, but there was no peritonitis. In the posterior wall of the bladder was an elliptical perforation through the base of an ulcer; the ulcerated surface resembled that of a gastric ulcer. Bartlett, in 1876, reported a similar instance in a man, aged 53. Reeves, in 1885, observed a fatal perforation of a simple vesical ulcer in a young woman. Pousson speaks of a previously healthy woman, aged 36, who was taken suddenly ill and died in 36 hours. The autopsy showed a perforation of an ulcer in the summit of the bladder.

Burgess cites the case of a man, aged 25, whose previous health had been excellent. Suddenly, without previous symptoms, while urinating, he experienced a violent pain in the right groin and perineum; in a short time blood appeared in the urine and the bleeding kept up until the patient became very anemic. A suprapubic opening disclosed a circular ulcer, three-fourths of an inch in diameter on the posterior wall, close to the trigone. This was curetted and touched with a 1 to 20 carbolic-acid solution. Five months later the patient was well.

Castaigne's case is the most undoubted example on record of an acute perforating ulcer of the bladder. A

man, aged 36, apparently in perfect health, was attacked one morning with a very acute pain in the right lumbar region, which extended to the glans penis; this was so intense that he could not walk. Micturition from the first was very difficult, and after 48 hours the urine became bloody. The pain and the blood continued, the abdomen became very much distended and tender and death occurred after six days. Autopsy showed a perforation through the posterior wall of the bladder into the peritoneum, causing hemorrhage and peritonitis.

DIAGNOSIS.

In the earlier stage we have no means of diagnosis other than cystoscopic examination. This shows a simple ulcer which has a punched-out appearance, with clean, smoothly cut and slightly indurated edges. The remaining mucosa is normal.

From a tuberculous ulcer it is differentiated by the regularity of its edges, the appearance of its base, the absence of undermining of the margins, of surrounding tubercles, and of tuberculosis in other organs.

From the ulceration belonging to various forms of cystitis, it can be differentiated only in the stage before the development of the inflammation. In the second stage of the simple ulcer, when the cystitis has been cleared up, it is impossible to say whether the ulcer has been caused by the cystitis or the cystitis by the ulcer. In the third stage, in which the bladder wall has become infiltrated and a calculus has probably formed, no diagnosis can be made as to the primary condition.

In the middle and terminal stages, the local symptom-complex of simple ulcer is very similar to that of tuberculous cystitis, and I feel sure that a number of so-called healed cases of bladder tuberculosis have been instances of simple ulcer. The differential diagnosis can be made by cystoscopic examination, aided by the presence or absence of tubercle bacilli in the urine.

PROGNOSIS.

In the early stage of simple ulcer the prognosis is good; with proper treatment, practically, it will heal. In the second stage, when lime salts have been deposited, and the ulcerations are exaggerated, curetting and drainage will usually effect a cure. In the third stage, in which there is a great interstitial change, the prognosis is grave; the majority of these cases are not curable, and a number of patients die from exhaustion, ascending infection or other complications. The acute perforating type is usually fatal, practically always so when the peritoneum is implicated. Harrison recognized a very early perforation and saved the patient by an operation. I have found no other similar case reported.

TREATMENT.

Irrigations with silver nitrate, from 1 in 10,000 up to 1 in 5000 every second day, will usually effect a cure in the first stage. Le Fur reports nine cures in ten cases brought about by the use of this remedy. If, after a sufficient trial, this does not succeed, the ulcer may be cauterized with the cauterizing cystoscope, or a suprapubic opening made and the ulcer curetted and cauterized with the Paquelin instrument.

In the second stage, a curetting and cauterization with a prolonged drainage through a suprapubic opening are necessary to effect a cure.

In the third stage, drainage, irrigation and gradual distension of the bladder are all that can be done. The change that has occurred in the bladder wall renders it very unlikely that a complete healing will take place.

ETIOLOGY AND PATHOLOGY OF TRAUMATIC RUPTURE OF THE ABDOMINAL VISCERA.*

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The abdominal viscera, while not exposed to such infrequent injury as the extremities, are of far greater importance as regards the life of the patient. The diagnosis of such injuries is often difficult, and time is of such great importance that a quick decision, followed by aggressive surgery in the proper cases, has in recent years made the prognosis much more hopeful. The etiology has an important bearing in making at least a probable diagnosis, such an important factor in meeting this grave pathologic condition. Either hemorrhage, shock or peritonitis is apt to follow, as a natural course, rupture of any of the abdominal organs.

SPLEEN.

The spleen is a ductless gland situated in the left hypochondriac region at the tail of the pancreas and behind the peritoneum. It weighs five to eight ounces and is of about the same size at birth, not increasing in proportion to the body. It has an intimate connection with the stomach and the left kidney. The tissue of this organ is soft, brittle and highly vascular, being supplied by the splenic artery directly from the abdominal aorta. The gland is enveloped by a serosa and underneath by a fibrous capsule, sheaths of which ramify through the parenchyma. This organ is in a protected position and is practically suspended by two folds of peritoneum, thus offering two means guarding against frequent subcutaneous trauma.

Cases have been described by Vanselow in 1696, Scheid in 1725, Zopff in 1740, Sporing in 1775, Pyle and Wunder in 1789, and Chisholm in 1811. Andoward, in 1827, considered intermittent fever as a cause of rupture. The excessive use of alcohol was ascribed by Thompson, in 1829, as the reason for rupture in a case reported by him. There are numerous individual cases in the literature which I will not dwell on, but will mention collective statistics. Edler reported 160 cases of injury, of which 51.8 were subcutaneous. Berger collected 300 cases in the male sex and 60 in women. In 1901 Fevrier presented instances of 56 ruptures. Statistics show that, comparatively speaking, rupture of the spleen is not of frequent occurrence. Of 131 cases collected by Lewerenz, 82 occurred in pathologic organs.

A healthy spleen is seldom injured. Enlarged spleen due to malaria, tuberculosis, syphilis in the newborn, and typhoid fever is a predisposing factor. It has even been ruptured through violent muscular action during sneezing and vomiting. Abdominal palpation in a cachectic patient is said to have been followed by this accident. There is record of several cases in which it ruptured during pregnancy and childbirth. Lamarchia says that the hilus is especially prone to yield. The capsule has an intimate relation with the parenchyma; so that both are usually torn together. Slight injury may cause hemorrhagic foci in the spleen substance; or the parenchyma may be injured while the capsule remains intact, causing an intracapsular hematoma. In time this may become absorbed; or if infection takes

* Read at a symposium on "Traumatic Rupture of the Abdominal Viscera," before the Chicago Medical Society, Oct. 31, 1906.

place it may become adherent to adjacent hollow organs and discharge its contents. This favorable termination, however, is exceptional. The tear is usually through the envelop, rapid hemorrhage occurs, and only speedy surgical intervention will save the patient's life.

PANCREAS.

This organ is the best sheltered of all the abdominal viscera and the least often implicated. Mikulicz reported 24 cases of this injury, the three principal causes of which were: Passage of a wagon wheel over the abdomen, crushing between cars, and the kick of a horse. The injury may be so great as to crush the pancreas against the vertebral column and divide it into two parts. Mikulicz reports such a case.

Reasoning from an anatomic standpoint, rupture of the pancreas alone without injury to adjacent organs must be one of the rarest pathologic conditions.

The relation of trauma to pancreatic cysts is most probably intimate. In slight injury of the organ blood collects in the tissues of the organ and beneath the peritoneum, causing cystic degeneration. This process should not be mistaken for hemorrhagic pencreatitis. Experimental research has shown that blood effusion in the pancreas is not readily absorbed; but will give rise to cyst formation if resorption is unfavorable, as by the application of iodin to the injured parts. Hemorrhagic cysts may follow injuries of the upper portion of the abdomen with effusion into the lesser peritoneal cavity. Moynihan thinks that so-called pancreatic cysts are in reality peripancreatic or pseudocystic effusions into the lesser peritoneal cavity. Hagenbach distinguishes between hematoma in which bleeding occurs into preexisting cysts and apoplectic cysts resulting from hemorrhage into the softened degenerated gland substance. Injury to the pancreas can cause a discharge of pancreatic secretion, giving to the contents digestive power, and may even lead to a pancreatic fistula. Jordan Lloyd claims that when fluid in the lesser peritoneal cavity is found to have the property of converting starch into sugar we may assume that the pancreas has been injured. Mikulicz says that the pancreatic juice mixed with blood has a very toxic effect and can result fatally without bacterial infection.

LIVER.

This, the largest gland in the abdomen, is situated, comparatively speaking, superficially. Its location under the right costal margin and the juxtaposition to the abdominal parietes, together with its relation to the ribs, vertebral column and diaphragm, exposes it to injury, and as a consequence it is ruptured more frequently than any other gland structure in the abdomen. Moreover, it is not compressible and its supply of elastic fibers is few. As probable predisposing causes we must mention tuberculosis, syphilis and amyloid degeneration. Close proximity of the lower ribs accounts for rupture six times as frequently on the right side as on the left and twice as often on the convex as on the concave surface. Terrier and Auvray reported 46 cases, collected from the literature, of which 33 patients recovered and 13 died. Edler, in 1887, published statistics of 543 cases, the mortality being 67 per cent.

There are three forms of subcutaneous injury: 1, Rupture of the hepatic tissue, as well as the capsule; 2, subcapsular hematoma underneath the capsule; 3, central hematoma which may undergo cystic or abscess formation. When the parenchyma is opened there is usually severe hemorrhage, because the organ is very vascular and because the vein walls are held open by the liver tissue. The patency of the veins may also facilitate the entrance of hepatic cells into the blood current and set up pulmonary embolism. When there is superficial laceration, bile flows after a few days, when the layer of coagulation necrosis is cast off.

The gall bladder, especially when distended, as in hydrops, is prone to rupture under a very slight force. The ducts may also be implicated in certain instances. Courvoisier mentions 34 cases of subcutaneous rupture of the bile tracts, with death in 22. Experiments on animals show that extravasated bile gives rise to violent symptoms, but not necessarily to a fatal peritonitis. Bile from healthy ducts is sterile; but serves as a most excellent culture medium for bacteria which may pass down from the duodenum. If there is a pre-existing infection of the gall bladder or ducts, an immediate septic peritonitis is inevitable. Cholemic intoxication due to resorption of bile by the peritoneum is also a danger of no small moment.

STOMACH AND INTESTINES.

While the stomach gives rise frequently to peritonitis due to a perforating gastric ulcer or carcinoma, in comparison with the intestinal tract it is rarely damaged by blunt force. Petry collected 219 cases of subcutaneous injuries of the alimentary canal, of which the stomach was involved only 21 times, while the small intestine was injured 172 times. In 111 cases Coull Mackenzie found the stomach injured only once, and then there was an accompanying wound of the spleen, showing that great force had been exercised. For obvious reasons the stomach is well provided for against damage by external contusion, and I will describe in detail the more frequent injuries of the intestinal tube.

FREQUENCY OF SEGMENT OF INTESTINE INVOLVED.

These injuries are found most often in men and young adults by reason of their greater exposure to injury. In a study of the statistics of the relative frequency of rupture of the different portions of the intestinal tract, no mention is made in many instances of the exact anatomic location of the lesion. Jalaguier claims that in all contusions of the abdominal wall in which the viscera are injured the digestive tract is involved in one-eleventh of the cases. The statistics are based on those of Thomas Morton, 234, and those of Coull Mackenzie, 111, making a total of 345, of which 31 concerned the gastrointestinal tract. Chavasse found the ileum and jejunum injured 106 times, large intestine 19, duodenum 7, small and large intestine, together, 7, and the rectum 1. Curtis, in 113 cases, found the large intestine injured only 4 times. Bryant, in a series of cases, gives the duodenum 2, jejunum 7, and the ileum 10. In 10 cases collected between 1873 and 1890, Croft states there were 7 of the ileum and 3 of the jejunum. Maylard recorded 10 cases, of which 6 were injuries of the ileum and 4 of the jejunum. Poland discovered 5 cases of rupture of the large bowel out of 64 injuries to some portion of the intestinal tract. In 40 cases of rupture of the small intestine, only 4 occurred in the duodeum.

It will be seen that while the duodenum is firmly fixed in its position, it is, comparatively speaking, rarely injured. It is protected by its thick walls and also by its deep position. As we proceed in a downward direction to the ileocecal valve, traumatic rupture becomes correspondingly more frequent. This condition is explained by the greater exposure, especially of the ileum;

the mobility of the intestinal coils, and by the gradual attenuation of the tunics of the small intestine. The large bowel is protected in the loin and hypochondriac region. Its contents, which are usually of a semi-solid or solid consistency, militate against injury, while we know that the fluid contents of the small intestine play an important rôle in rupture.

MECHANISM OF INJURY.

Speaking in a general sense, blows directed above the level of the umbilicus are unlikely to cause intestinal injuries. There are certain accidents which should invite suspicion of rupture. Thomas Bryant has well said:

> When an individual has been run over, the wheel passing over the abdomen or back, or has had a kick from a horse, a fall from a height, or a crush between two obtuse bodies, there is a great probability of injury to some solid viscus or laceration of the intestine.

The usual nature of injuries which produce rupture is shown by the 149 cases of gastrointestinal involvement collected by Chavasse; 36 were due to kick of a horse; 13 were due to kick of man, blows by clubs, etc.; 23 were due to crushing of wagon wheels. It is obvious that we must first consider the force applied in consideration of the mechanism of injury.

We may classify such force into, first, direct; second, indirect. By direct force I mean that the vulnerating body has been applied in the nearest line to the exposed intestines, that is, against the abdominal parietes. By indirect force I have reference to an impulse conveyed to the intestines by an impact directed on the buttock or the lumbar region. Again, we can classify such injuries in regard to the nature of the applied force into, 1, percussion; 2, compression. Strictly speaking, the great majority of cases of traumatic rupture of the intestine are due to compression, although there is only one vulnerating body. A blow is administered on the abdominal wall, but the rupture is due to the compression between two solid bodies; that is, the vulnerating force and the vertebral column behind or the bony pelvis. This is substantiated by Makin's observation that intestinal ruptures are found most often in that portion of the intestine which is low in the pelvis. There are undoubtedly ruptures produced in the true sense of percussion, that is, the impulse of the blow might cause violent momentary vibrations in a coil of intestine over-distended with fluid contents, and thus cause a rupture. This supposition is supported by the fact that in the great majority of cases the rent in the bowel is at the convex surface, diametrically opposite the mesenteric border. All cases of rupture produced by indirect force would be effected in this manner.

In a careful search of the literature several years ago, I found only 2 well authenticated cases of rupture produced in this manner, both of which were published in 1902. Dr. J. F. Bottomly reports a case in which a patient was struck in the back below the left shoulder blade by an approaching wagon. Operation showed a perforation of the first portion of the jejunum. Westbrook describes a case in which a wagon-pole struck a man in the lumbar region. Autopsy revealed a rupture at the junction of the duodenum and jejunum large enough to admit two fingers. In my practice I had a case illustrative of an injury to the intestine, which was produced in a unique way, and shows the possibility of a force of small degree directed on the buttocks, capable of producing intra-abdominal laceration.

> The patient, a young woman, aged 26, of previous good health, while hurrying into her house to escape a thunderstorm, slipped and fell, striking the ground on the right buttock. She had partaken of a hearty supper. No immediate alarming symptoms were noticed, and the patient retired as usual. Several hours later she awoke with severe abdominal pains, and the usual symptoms of a perforative peritonitis. Operation revealed a small perforation, about the size of the little fingernail, on the convex surface of what appeared to be the lower portion of the jejunum. The patient made a perfect recovery.

The state of the abdominal muscles at the time of injury plays an important rôle in intestinal injuries. A blow delivered on a rigid abdomen loses considerable of its force; while an impact directed against the same structure in a relaxed state is transmitted directly to the underlying intestinal coils, and enhances the liability of a rupture.

This assertion has been demonstrated beyond a doubt by the beautiful experiments of Eichel. He first made a series of experiments on dogs, profoundly etherized. The animals were placed on the back, the extremities being tied and extended. A forcible blow was struck on the abdomen with a heavy club. The experiments were all negative, laparotomy showing the intestines intact and only slight extravasation in the tissues of the abdominal wall. The same experiments were performed on dogs which had been over-fed for two days in advance, but the results were also negative. In another series of experiments the hind legs were loosened before the stroke. In the first experiment the blow was delivered too high, producing a rupture of the liver. The stomach wall was also the seat of suggillation. In other experiments a hammer was used instead of a stick to produce the trauma and rupture was almost invariably produced. Experiments were also made by striking the lumbar region, the intestines having previously been insufflated with air through the rectum, but no rupture of the intestines was produced. Chauveau maintains that the reverse is the rule. He claims that contraction of the abdominal muscles diminishes the abdominal cavity, and also immobilizes the intestinal coils, and thus favors rupture. This argument, however, should bear no weight, as it stands simply as a personal conviction, or, rather, an hypothesis, while Eichel's opinion rests on the firm basis of experimental research.

Other conditions may predispose to injury, such as adhesions, alteration of intestinal walls, old reducible hernia, in which the intestinal walls have been weakened by pressure. There has been much discussion as regards gaseous distension facilitating rupture. In 1875, Longuet claimed that the elasticity of the gas was unfavorable to rupture, while liquid distension favored it. This theory was accepted by Mugnier. The hydrostatic pressure of intestinal fluids is evidently the cause of rupture in cases produced by indirect force. That gaseous distension would act as an elastic cushion seems plausible.

PATHOLOGY.

From a pathologic standpoint, we can divide these injuries into, 1, contusion; 2, rupture; incomplete and complete. Contusions may be of all degrees, either a simple interstitial ecchymosis, or a submucous infiltration; or else there may be an infiltration through the entire thickness of the intestinal coats. The contused surface is more or less rounded or oval, and the long diameter is usually in the long axis of the bowel. The color of the ecchymotic area depends on the amount of

infiltration, and is usually white or yellow. The surface is denuded and covered by an exudate. Sometimes different areas of contusion are found in the same intestinal loop, or in different loops in the same region. Contusion probably is often produced and causes no untoward symptoms. There are, however, cases on record in which, after an injury, the patient progressed well for days or even weeks, when suddenly symptoms of a perforative peritonitis arose, and the autopsy revealed a perforation. At the time of the accident a contusion was produced, which in time became the seat of an infection; or else by reason of an interference with circulation a necrosis resulted which compromised the integrity of the intestine.

Thomas Bryant reports two cases of delayed rupture. One progressed favorably after the accident until the nineteenth day, when the patient died. Necropsy showed perforation of the duodenum, and an ulcer on the posterior wall of the stomach. In the other case there was a perforation on the fifth day. Autopsy demonstrated a perforation of the ileum 4 inches above the cecum.

Incomplete ruptures, when one or two of the tunics are torn, in all probability are frequent; as far as pathologic investigation can be pursued, however, they are supposed to be rare. In a case observed by Jobert, in 1825, ecchymotic spots were found in the small intestine, and a rupture of the longitudinal fibers of the colon discovered. Poland reports 2 cases of such ruptures in the stomach, in one the mucous membrane, and in the other the peritoneal coat. Complete ruptures, in which all the tunics are ruptured, are more often brought to view on the operating table and in the postmortem room. Chavasse, in 149 cases, found this condition 14 times, duodenum 1, junction of duodenum and jejunum 3, jejunum and ileum 10.

Complete ruptures are usually single, but may be multiple, especially following the kick of a horse. Moty claims that there are often two perforations corresponding to the two lateral extremities of the horseshoe. It is a marvelous fact that a contusion of sufficient intensity to cause a complete rupture does not often injure other viscera, for Coull Mackenzie, in 111 cases, only found 2 with accompanying injury to the spleen and liver. The rent in the intestine always occupies the point diametrically opposite the point of the mesenteric insertion. It is sometimes a clean-cut wound, and sometimes the border is ragged and irregular. Leakage after rupture can be entirely prevented by means of two factors.

We must remember there is no abdominal cavity in reality, the whole of the visceral contents being so closely and equably brought into contact by the pressure of the abdominal muscles and diaphragm that considerable force is required of the intestinal contents to overcome this. The influence of the pressure of the abdominal muscles on the intestinal contents is well-known clinically, because if an injured coil of intestine protrudes from the abdomen devoid of the intra-abdominal influence, extravasation takes place much more readily. The intrinsic contractility of the intestinal tunics is another inhibitory agent against extravasation. Travers, long ago, pointed out that in a puncture of the gut, or even an incision, two or three lines in length, an eversion or prolapsus of the mucous membrane takes place, and hermetically seals the opening. If the aperture is more than four lines in extent, the protuberant mucous membrane is incapable of protecting the perforation. The protrusion of mucous membrane is due to the retraction of the longitudinal fibers. There is also contraction of the circular muscular fibers around the protruded mucous membrane, according to Jobert; thus, temporarily at least, preventing extravasation. Even in extensive complete rupture there is little likelihood of visible fecal extravasation, for Makins, in an exhaustive report of 20 cases, in St. Thomas' Hospital, London, found no appreciable escape of fecal matter.

KIDNEYS.

The kidney will next be considered, although, in the true anatomic sense, it is not an abdominal viscus, as it is extraperitoneal. It is a loosely suspended organ, and is fairly well protected. Herzog found 16 spontaneous injuries in 7,805 autopsies. Maas, in 1878, was able to collect only 71 cases. In 1896 Küster presented 306 cases, of which 241 were free from other complications. Keen studied 118 cases since 1878. Güterbock, in 1895, reported 326 cases (males, 262; females, 64).

In view of the foregoing statistics, it is at once apparent that this injury is fairly frequent. These injuries are of most frequent occurrence during the second and third decade of life, and 94 per cent. occur in the male sex. The greater exposure which men must meet in their daily vocation accounts in a great degree for this marked difference in frequency between the sexes; but Küster, who has given this subject such great study, offers an explanation by reason of anatomic difference between the two sexes. The broader iliac crests and the thick layers of panniculus adiposus, characteristic of the female, Küster thinks gives protection to the kidney. The female mode of dress, to my mind, is also an additional safeguard, especially the corset, which must make this organ secure against trauma.

The right kidney is most frequently injured. Küster, in 272 cases, found right kidney, 142; left kidney, 118; bilateral, 12. The usual mode of violence is a blow from the side or behind, or a crushing injury between two resisting bodies. Edler, in 90 cases, gives the following causes: Crushing injury, 30; falls, 28; run over, 13; blows, 9; shell contusions, 4; unknown, 6. Rarely the kidney may be damaged by a force, administered at a distance; such as lifting heavy weights, or a fall on the buttocks. These latter injuries are supposed to be due to jamming. Le Dentu ascribes it to contrecoup, as in the brain.

The mechanism of injury in most cases is due to bending, or fracture of the lower ribs, and the kidney is forced against the transverse processes of the vertebræ. Fracture of the ribs occurs occasionally. Küster found this complication 14 times. Küster speaks of the hydraulic force and he has made some experiments which make his assertions plausible. Kidneys removed from animals were thrown to the floor and the injury produced was slight, but where the renal vein and artery were ligated and the pelvis of the kidney and ureter distended and tied off, and the kidney then allowed to fall to the floor, there was a far greater degree of injury. Hydraulic pressure causes bursting, therefore, a rent from the pelvis outwards.

Güterbock believed the force applied caused pressure at the poles of the kidney and thus produced a transverse rupture. The majority of rents are found in the direction of the transverse axis, and are most marked near the middle of the organ, which is the narrowest and weakest. The tubules run in a lateral direction, the kidney substance would therefore give away in the line

of least resistance. Francis S. Watson, who analyzed 650 cases of subparietal injury of the kidney, maintained that when a single intraperitoneal organ was injured in association with laceration of the kidney it was always on the same side. The pathologic condition produced is in direct ratio to the degree of the vulnerating force applied. There may be a tear of the fatty capsule with an infiltrating hematoma around the gland, or, moreover, the peritoneum may be torn. Küster, in 251 cases, found the peritoneum injured 14 times. This is most likely to occur in children under ten years of age, because the perinephric fat is not developed and the anterior surface of the kidney is separated from the peritoneum by only a delicate fascia. Death occurred in 6 out of 7 cases in the Maas statistics.

Contusion may cause effusion of blood underneath the capsule and which, of course, is very limited. There may be laceration of the kidney substance without implicating the pelvis. A tear into the pelvis of greater or less degree is an injury of serious aspect. There is hemorrhage into the fatty capsule; thence into the retroperitoneal space along the large intesine, mesentery, spermatic cord, to the inguinal ring, scrotum, labiæ, pelvis or abdominal wall. Urine follows and leads to a gangrenous inflammation or a perinephritic abscess; especially is this the case if a blood clot occludes the ureter. If the kidney is crushed into fragments, gangrene must surely follow, and if the integrity of the renal vessels is interfered with, the patient succumbs, unless immediate surgical measures are adopted.

Morris asserts that there may be extensive effusion around the kidney, with little evidence of injury to the kidney itself; while, on the other hand, the kidney may be almost reduced to a pulp, with little or no extravasation into the surrounding structures. The ability of the kidney to maintain functional capacity and also remarkable regenerative power has been shown experimentally and clinically. A hematoma in the renal region is very prone to become infected, causing a pyonephrosis, perinephritic or paranephritic abscess. Subparietal injury of the ureter is rare. Le Dentu found record of only 20 cases in 10 years. There are only a few authenticated injuries of the ureter. Cases have been reported by Barker, Stanley and Poland. The most frequent cause is the passage of a vehicle across the body. The mechanism of the injury is probably produced by the forcible stretching of the ureter over the transverse process of the first lumbar vertebra, as the injury is most frequently situated near the kidney. There would be retroperitoneal effusion of both blood and urine and septic peritonitis if the peritoneum is injured. A remote result may be hydronephrosis due to cicatricial contraction at the seat of injury.

BLADDER.

This subject has been treated in a masterly manner many decades ago by Dr. Harrison, of Dublin; Houel, of Paris, and Stephen Smith, of New York, and more recently, in 1884, an exhaustive monograph was published by Walter Rivington. In studying rupture of the bladder, two conditions must be taken into account, the state of the bladder wall, whether normal, or the seat of previous disease or degeneration; and also whether empty or distended.

This accident is most frequent during young adult life, and it is astonishing when we consider how much more frequently this accident occurs in males. Stephen Smith collected 78 cases, in 67 of which the patients were men. This difference in ratio is not probably due to greater exposure altogether, but was anatomically explained by Dr. Harrison in the following manner:

1. Greater size of female pelvis. 2. The bladder inclines more forward and enlarges transversely. 3. The uterus and its folds break the shock of violence, and prevent direct concussion against the sacral promontory. It is a popular anatomic notion that the bladder is more capacious in the female than the male, but, according to Quain, made on the authority of Henle and Luschka, the female bladder is decidedly smaller, but of different shape, being wider transversely and shorter from apex to base. In Smith's 78 cases, 48 were due to direct violence; 15 concussion of body; 4 parturition; 1 retroversion of uterus; 4 stricture of urethra, and cause not specified in the rest.

Alcohol has a double influence in the etiology of this injury. It causes an increased secretion of urine and a quick distension of the bladder. It blunts the sensitiveness of the mucous membrane and the call to micturate is so feeble that it is disregarded by the individual and the distension is allowed to increase. Secondly, the abdominal muscles are so relaxed that they offer no resistance to a blow. Houel, in 41 out of 107 cases of intraperitoneal rupture, distinctly specified or implied that the patient had been drinking alcoholic liquors freely or was actually drunk at the time of the accident. Strictures and enlarged prostate extending over a long period of time have caused such a morbid condition of the bladder that rupture is greatly facilitated. When laceration takes place in consequence of inordinate accumulation of urine, due to prostatic hypertrophy or obstruction of the urethra, there is degeneration of the muscular coats, and under such circumstances a trivial exertion, such as vomiting, sneezing or micturating, may cause rupture.

Assmuth reports two cases in which the bladder was ruptured, owing to lifting heavy weights. This may also happen during labor. Sasie, Mercier, Liston, Howship and Field report cases of rupture due to hypertrophied prostate. The pressure of the diaphragm and abdominal muscles under such circumstances on the overdistended viscus, is equivalent to a severe blow on the hypogastric region. Houel describes a condition applicable to a small group of so-called spontaneous ruptures. It is the presence of pouches of mucous membrane passing out through intervals between the muscle fibers. The supplementary pouches were studied by Cruveilhier, who called them tunicated or tunicary herniæ. When large, the pouches have been taken for multiple bladders.

Distension is one of the main factors. It is doubtful if the empty bladder is ever injured, except in case of fractures of the pelvis. Rivington, in 110 intraperitoneal ruptures, had distinct evidence that the bladder was full in 55. In some of the others, the patient is described as drunk; while in the rest no mention is made. A slight blow on the anterior abdominal wall, when the bladder is full, makes pressure on the posterior pelvic brim. As regards the actual mechanical force, Bartels gives three possible causes: 1, blows received in the region of the bladder; 2, fall from a height; 3, pressure of some heavy body over the pelvis. Autal mentions a fourth class due to artificial distension. The first is the most usual, however, that is, a direct blow.

Guyon claims that ruptures which are caused by artificial distension take place by reason of the hypertrophic muscles, contracting in conjunction with distension,

thus causing rupture. Dittel showed that in artificial inflation with air in the cadaver rupture was almost always intraperitoneal. If the bladder was distended with water, 50 per cent. were intraperitoneal. Of 8 cases reported in actual practice, 7 were extraperitoneal and 1 intraperitoneal. Of 78 cases due to all causes, reported by Stephen Smith, 50 were intraperitoneal. In 169 cases of Bartels, only 49 were extraperitoneal. Because of the intimate relation of the bladder to the pelvis, naturally the former is often ruptured in fracture of that part. According to Bartels, in 179 cases of rupture, fracture of the pelvis was present 109 times; os pubis, 27; ischium, 12; ilium, 9; sacrum and pubes, 5; symphysis pubis loosened, 22; sacroiliac synchondrosis loosened, 10; fracture not determined, 11; fracture multiple, 30. King, Howship and Malgaigne each published a case occurring in a fetus.

The majority of tears of the bladder are intraperitoneal and situated in the posterior wall, which is in accordance with the physical principles of the resolution of forces. Morbid anatomy teaches that the rent may pursue a vertical, transverse or oblique course. In the majority of instances the aperture has been found to extend from the attachment of the urachus through the posterior wall of the organ, involving not only its proper tissues, but the peritoneal covering as well. The extraperitoneal ruptures are situated in the anterior wall. In the so-called idiopathic cases the rent is small and often circular, coinciding with pathologic tissue; while in genuine traumatic cases it is generally an inch or more in length. Hemorrhage is not as profuse in trauma of this structure, as it is not as vascular as the glandular organs, but sepsis of the most virulent type will follow extraperitoneal wounds and rapid progressive peritonitis is the termination of the intraperitoneal laceration, unless radical surgery follows immediately after the accident.

Clinical Notes

CASES PRESENTING SYMPTOMS OF BRAIN DISEASE.*

AUGUSTUS A. ESHNER, M.D.
PHILADELPHIA.

The following cases, illustrating different phases of cerebellar disease, are considered worthy of record:

I. A CASE OF HYSTERIA PRESENTING SYMPTOMS OF CEREBELLAR DISEASE.

Patient.—A tailor, aged 42, presented himself on account of difficulty in walking a few weeks after the removal of several teeth, one of which was carious, for the relief of swelling of the face. In addition he had suffered fright two weeks previously from having remained for a short time alone in a house in which a close friend had died. The man walked like a drunken person, with a tendency to fall to the right in consequence of a sense of weakness of the entire right side of the body. He had a feeling as though he would fall, and he had difficulty in arising from the sitting posture. The right chest felt as though it were grasped in a vice, and there was pain in the right side of the head. There was tinnitus in the right ear, with impaired hearing.

Examination.—The gait was found to be awkward and clumsy, though undistinctive. Station was steady at first, but after a while it became uncertain and finally swaying. The knee-jerks were preserved. Sensibility was less acute on the entire right side of the body, including the face, than on the left. The dynamometric record was 75 and 77 on the right, 70 and 75 on the left. The pupillary reactions were normal and there was no limitation of the fields of vision, nor any lesion of the eyegrounds. The right ear-drum was retracted, but freely movable. The hearing distance on this side was 3/12, and air-conduction was better than bone-conduction. The left ear-drum also was freely movable. Hearing distance with this ear was 4/12, and air-conduction was greater than bone-conduction. The Weber test was in favor of this ear. There was no sign of inflammatory trouble in connection with the auditory apparatus. The action of the heart was rhythmic and its sounds were clear. The radial artery was somewhat resistant.

Symptoms.—The appetite was variable, though mostly poor. Nausea was present, but there was no vomiting. The bowels were moved with difficulty twice or thrice daily, and the stools were scybalous.

Diagnosis and Treatment.—I concluded that the case was probably one of hysteria, and, in addition to prescribing a mixture of aloin, cascara and assafetida, I instituted a course of hypnotic suggestion. Sittings were held every second day and the patient was dismissed well at the end of three weeks.

In this case the disorder of gait, in conjunction with the feeling of unilateral weakness—of which, however, there was no objective evidence—suggested the existence of cerebellar disease, and the tinnitus and impaired hearing an aural origin. There was, however, that about the patient which suggested hysteria, and this suspicion was strengthened by the absence of evidence of organic disease and it was established by the results of treatment.

II. A CASE PRESENTING SYMPTOMS OF INTRACRANIAL TUMOR, WITH RECOVERY.

Patient.—A huckster, aged 30, married, first seen January 15, 1906, complained of having been sick for one week, with vomiting, anorexia, bad taste, headache and vertigo. The patient drank tea and coffee sparingly, while of beer he took several glasses and of whisky one drink daily. He had never indulged excessively in alcohol, although he was a large eater. He had never used more than small amounts of tobacco. He gave no history of traumatism, and he denied venereal infection. He had had scarlet fever at the age of 12. The family history presented nothing noteworthy.

Examination.—Gait and station were ataxic, and the man was unable to get about. Knee-jerks, Achilles tendon jerks, and plantar reflexes were all preserved. The grasp of the hands was fairly good. The patient thought his vision impaired, but no objective evidence of ocular disturbance could be obtained. The action of the sphincters was underanged, and the bowels moved regularly. The tongue was heavily coated. There was no cough, and heart, lungs, liver and spleen presented no abnormality. There had been loss of weight to the extent of fifteen pounds. The pulse was 68 and the temperature was 98°. There had been bleeding from the nose two weeks previously. On further inquiry the patient stated that he had vomited every morning for a year until one week before I saw him. He had, however, not suffered from headache previously, nor from vertigo. The headache was diffuse in distribution, and there were no mental changes.

Treatment.—The existence of a tumor of the brain was suspected, and laxatives, together with sodium bromid (gr. xv every three hours) and potassium iodid (gr. xv thrice daily, gradually increased), were prescribed.

Subsequent Examination.—Two days later tenderness of the scalp in the right parietal region was elicited on percussion. The knee-jerks were preserved. Station was unsteady. The patient leaned toward the right, and felt a tendency to fall in this direction, although occasionally he would fall also to the left. He had great difficulty in walking, although there was no steppage gait. The patient now attributed to vertigo the impairment of vision previously complained of. He felt better generally and he was somewhat drowsy. Headache and vertigo persisted in unchanged degree, but vomiting was less. There had never been loss of consciousness or convulsion.

* Patients demonstrated and paper read before the Philadelphia Neurological Society, Dec. 21, 1906.

On January 19 the dynamometric record was 115 and 105 on the right and 65 and 60 on the left. It was now noted that the knee-jerk was less active on the left than on the right, and the patient stated that he had been aware for three or four days that the left side of his body was weaker than the right. Three days later he was seen with me by Dr. C. K. Mills and Dr. W. W. Keen. He now spoke definitely of weakness of the left upper and lower extremities. On examination no paralysis of any ocular muscle or of the associated movements of the eyes or of the facial, temporal, pterygoid or masseter muscles, or of those of the tongue or the mouth could be discovered. Nearly all of the movements of the left upper extremity were preserved, and they were executed almost as well as on the right, except perhaps for some weakness of movement in distal parts. There was distinct ataxia in the left upper extremity, as tested by approximation of the finger to the nose and to objects of small size. In the left lower extremity also all movements were preserved, although those of the foot were a little awkward. The test of bringing the heel to the knee was well executed. The knee-jerks were preserved, that on the left being the more marked. Slight ankle-clonus also was present on the left, soon, however, disappearing. The entire left lower extremity was ataxic. Station was good. The patient was able to stand on the right foot only with great difficulty and on the left foot with even greater difficulty. There was no Babinski phenomenon on either side, and plantar flexion of the toes was observed once on the right. There was no metatarso-phalangeal response, but marked dorsal flexion of the feet on both sides. The stereognostic sense was preserved and there was no loss of sense of posture or of touch or of pain or of localization. There was no hemianopsia on either side. There was some mental sluggishness. The patient stated that his condition was unchanged, the headache and vertigo being as bad as they had been, although there had been no vomiting for six or seven days. He was constantly drowsy and he slept well. In addition to the treatment already mentioned mercuric chlorid (gr. 1/24 thrice daily) was now prescribed.

On January 26 the patient thought his headache less, and that the left hand was not so weak as it had been, but he still walked with difficulty. He was constantly sleepy. The knee-jerk was distinctly more marked on the left than on the right, but there was no ankle-clonus and no Babinski reflex.

On February 2 the patient reported that he was still better than he had been. He walked better. His head felt better, and his headache was less, the pain now being referred to the vertex and varying in situation. There was less vertigo and the eyesight was thought to be improved. There was, however, no improvement in the power of the left upper extremity. The knee-jerk at this time was increased on the right, and even more so on the left. Slight ankle-clonus could be elicited on the left, but none on the right. The Achilles tendon jerk also was more pronounced on the left than on the right, but no plantar reflex could be elicited. The dynamometric record was 145 and 122 on the right, and 100 and 75 on the left. In standing the patient held his feet some distance apart, and his station was merely a little uncertain with the feet in apposition and the eyes open or closed. The gait was clumsy and uncertain, the feet being held some distance apart. The patient was now able to stand fairly well on his right foot and somewhat less well on the left foot. He exhibited a tendency to turn his head toward the left. The pupils were full, equal, regular, reactive to light and in accommodation. Ophthalmoscopic examination disclosed only some distension of the retinal veins.

On February 9, the dynamometric record was 137 on the right and 102 on the left. Station and gait were improved. The pupils were normal. Coördination was not so good in the left upper extremity as in the right. The plantar reflex was normal on the right, increased on the left. There was no Babinski reflex. The ankle-jerk was increased on the left, but there was no ankle-clonus. Vertigo was still present, though in much slighter degree than it had been. There was no headache, and drowsiness was less marked, while sleep was good. The upper and lower extremities on the left side were still slightly enfeebled.

On February 16, the patient was walking better. He still held his feet some distance apart, but he walked with a sense of greater security. He stood well, with feet together and eyes open or closed. He had no headache and less vertigo. Drowsiness had disappeared, and he was gaining power in the left arm and leg. The pupils were normal. The knee-jerk was still increased on the left and normal on the right. The Achilles tendon jerk was slightly more marked on the left than on the right. A slight plantar reflex was present on both sides. The patient was now able to walk about the distance of a block, when he was compelled to desist on account of vertigo, which, however, was absent in the sitting posture.

On February 23 the vertigo was practically gone. There had been headache for three days at the vertex. The upper and lower extremities were still weaker on the left than on the right. The left hand felt heavy. There was no undue drowsiness. Memory, eyesight and hearing all were good. The dynamometric record was 147 on the right, 130 on the left. The knee-jerk was normal on the right, enfeebled on the left. The Achilles tendon jerk was normal on both sides. Station was still a little swaying.

The patient continued to improve, although some weakness on the left side of the body persisted and he suffered from headache now and again. In June he began to do some work and he gradually increased the amount up to three days a week. During most of the time he took mercuric chlorid (from gr. 1/24 to gr. 1/12 thrice daily) and potassium iodid (from gr. xv to gr. 1/50 thrice daily).

The early symptoms in this case—namely, vomiting, headache, vertigo and ataxia—at once suggested the possibility of a new growth involving the cerebellum. The subsequent development of left hemiparesis, with increase in the reflexes on the affected side, bespoke invasion of the motor tract on the right side. The absence of convulsions, of perturbation of consciousness, of sensory disturbance, of astereognosis, of mental derangement, pointed to freedom of the cerebral cortex, while the absence of changes in the eyegrounds and of palsy of ocular muscles and the escape of other cranial nerves indicated that the lesion must have been one of small dimensions. The afebrile course of the illness seemed to exclude an inflammatory process. The results of treatment raised the question of a possible syphilitic infection, while the drowsiness—which seemed greater than could have been due to the bromids administered for the relief of the intense headache—pointed in the direction of meningitis or arterial disease.

RUBBER TUBING AS A PERCUSSION HAMMER.

A NEW METHOD OF PERCUSSION.

F. M. POTTENGER, A.M., M.D.
MONROVIA, CAL.

It may seem presumptuous to offer anything new in a field which has been so thoroughly tried as that of percussion, yet I offer what I believe to be a new method and one that possesses superior advantage over methods in common use.

Instead of a percussion hammer or finger with which to percuss the chest, I use a piece of rubber tubing, four or five inches long, and deliver the stroke directly on the surface of the chest. It makes a difference in the sound elicited whether a soft elastic tube or one with rigid walls is used; the former gives more or less of a dead sound, while the latter emits a note. The tubes which I have found most useful are a soft flexible tube with a lumen of 3/16 inch and walls 1/16 inch and a piece of ordinary tubing such as is used on douche

bags, with firm walls, not too thick, and a lumen of 3/16 inch.

The great difficulty with ordinary methods of percussion is that we rarely elicit the simple tone which should be produced by the underlying tissues, but obtain this tone plus that emitted by the vibrations of the bony thorax. With the use of the rubber tubing there is no noticeable thoracic resonance. The density of the underlying tissue can be determined readily both by the ear and by the sensation of resistance which is transmitted to the hand. When tubes with firm walls are used a tone is transmitted which changes with the density of the underlying part.

This is a valuable method of outlining the heart, the

Fig. 1.—New method of percussion by rubber tubing.

relative and absolute dulness being easily differentiated. Different degrees of infiltration and density in the chest are also easily detected, making this method of value in examining tuberculous chests.

One advantage is that the stroke may be made across the ribs as well as parallel to them, because it does not set the chest wall into vibration. Like all forms of percussion, it is most valuable where the least tissue intervenes between the skin and the part percussed, and is less satisfactory over the fleshy parts.

Perhaps a smaller, more definite area can be examined by the old method in which the finger or other plexímeter is used, and yet when we consider that we can use

Fig. 2.—Soft flexible tubing, with dimensions shown.

this method across the ribs as well as parallel to them and can percuss the parts immediately under a rib or under the sternum without setting the bony thorax into vibration, it is doubtful whether the supposed advantage is not more apparent than real. I find also that with practice one becomes expert with this method.

I have been using the method for over six months and have checked it with ordinary percussion, auscultatory percussion, auscultatory strokings and Ebstein's touch percussion. I find it very accurate; in fact, I can often elicit differences by this method that have been passed unnoticed by others.

While the old argument in favor of finger percussion, that one always has his fingers with him, still holds good, yet I believe this method is one of greater precision and believe it will pay one who appreciates exact methods to try it.

ABSCESS FOLLOWING ABORTION.

EDWARD W. ADAMSON, M.D.
DOUGLAS, ARIZ.

This case is reported as illustrating both the serious results that may follow an abortion and the surgical importance of the omentum.

History.—Mrs. H., Mexican, age unknown, mother of five children. Family and personal history negative. I first saw the woman June 22, 1906, when she complained of severe pain in hypogastrium. She had had a spontaneous abortion, following a family fight, six weeks before, and had been more or less sick since. She had had no movement of the bowels for four days; temperature was 102.5 F., pulse 110. Her tongue was badly coated and breath fetid. Urination was frequent and she had vomited once just before my arrival, but the vomitus was not saved. I found the patient on the floor on a blanket.

Examination.—There was no abdominal rigidity and only slight tenderness just above the pubes. Bimanual examination disclosed a slightly enlarged uterus, in normal position with the cervix soft and the os not patulous. Ovaries and tubes were negative. There was a slight yellowish discharge, but no bad odor.

Diagnosis.—Endometritis, following abortion.

Treatment.—A saturated solution of magnesium sulphate every hour in two dram doses until the bowels moved freely. Codein sulphate, gr. ¼, every three hours for pain.

The following day the patient was much better; there was free catharsis, temperature 99.5 F., and the pain was almost gone. There was no tenderness.

Second Examination.—I was discharged, but four days later was recalled and found the patient very sick with a temperature of 103.8 F. and a pulse of 130. There was severe general abdominal pain with the facies abdominalis. A large tumor mass was seen in the left half of the abdomen, apparently rising out of the pelvis, hard, non-movable, rounded, and the size of an adult head. There was dulness over the tumor. The left rectus was rigid over the tumor and lax above it. There was a smaller irregular tumor mass on the right side; also apparently from the pelvis; it was hard to outline and gave a flat note on percussion. The right rectus was very rigid. Bimanual examination revealed a fixed uterus with slight enlargement. There was bulging of the cul-de-sac of Douglas. Blood count showed leucocytes, 28,000. The patient was ordered removed to the Calumet Hospital.

Operation.—This was performed the same afternoon, with the assistance of Drs. Hickman, Tuttle and Lund. A median incision was made extending from the pubes to above the umbilicus. Immediately on opening the peritoneum there was a gush of pus and fecal material, of which about three quarts were removed. After thoroughly sponging out the cavity the following condition was found: The uterus was bright yellow in color, slightly enlarged, and in normal position. The tubes were apparently healthy, except for the peritoneal coat which shared in the surrounding peritonitis. The sigmoid was the only gut in the cavity. The upper wall of this large cavity was formed by the omentum. The large tumor mass to the left was the small intestines, held up by the omentum, which had curled around and below them, and attached itself to the posterior abdominal wall, holding them up and away from the infected cavity. The cecum and appendix were also covered. The rupture in the gut was evidently in the sigmoid, as this was the only gut in the cavity. However, the opening could not be easily found and as the woman's condition was serious we did not search long. A puncture wound was hurriedly made through Douglas' pouch and a long fenestrated rubber tube carried through, allowing the lower end to project from

the vagina. The upper end was brought out of the lower end of the abdominal wound. The cavity was packed lightly with gauze strips and the wound closed from above downward with "through and through" stitches of silkworm gut, leaving the last stitches untied. The tube and gauze projected through the opening thus left. The patient was put to bed in the Fowler position. The wound healed nicely and the patient made an uninterrupted recovery, leaving the hospital at the end of the fourth week. At the present time her health is perfect and she is now six months' pregnant.

The remarkable and fortunate feature of the case was the excellent protection given by the omentum. It is my belief that the sigmoid was at first adherent to the uterus and the point of adhesion sloughed, thus causing the perforation.

SPINAL INJURIES.

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HELENA, MONT.

Four cases of severe spinal injury have come under my observation in recent years, with about the usual result. Of this number two patients sustained a fracture in the middorsal region causing a complete crushing of the cord and as a consequence proved rapidly fatal in twenty-four and thirty-six hours, respectively. The third case (Case 1) presents some points of interest.

CASE 1.—A miner, aged 45, was working on a platform which gave way, precipitating him some distance. His spinal column was forced into a position of extreme flexion, being wedged in a narrow space during the 20 minutes required to free him from the débris.

Symptoms.—There was considerable shock and also pain on pressure at the dorso-lumbar junction, though no evidence of displacement or of fracture of the vertebræ was found. Both sensory and motor tracts of the cord were implicated, there being complete paralysis below the point of the lesion. Reflexes were absent; sensation, however, was not entirely lost, the girdle symptom being the only expression of distress manifested by the patient.

Treatment.—Laminectomy was suggested but not urged, its utility being a matter of doubt from the extent of the injury and its probable results. The patient preferred to take the chances of expectant treatment rather than to submit to an operation. A plaster jacket was applied, which served to relieve some of the minor symptoms. The usual complications, namely, retention of urine and decubitus, fortunately, were not encountered, an immunity rarely observed in similar conditions. The patient was under treatment for one year, when he removed to a distant state and was lost sight of. His general health was good, but the paralysis of the lower extremities remained as complete as when first noted, absolutely uninfluenced by treatment or time. It would be interesting to know whether an early operation would have added anything to his chances of recovery or the reverse.

Case 2 is an example of injuries to the dorsal region.

CASE 2.—A laborer, aged 25, fell backward from a trestle 25 feet in height, the upper and posterior part of the trunk coming in violent contact with the ground.

Symptoms.—There was no loss of consciousness but immediate and complete paralysis of the lower half of the body was noted by the patient on his first attempt to move. Pain over the epigastrium accompanied with nausea was marked and was rendered more intense by digital pressure over the sixth dorsal vertebra, where a slight ecchymosis existed. An ecchymosed and sensitive area over the posterior angles of the ninth and tenth ribs on the right side, together with bloody expectoration, led to the inference that there had been a fracture of these ribs, with contusion or wounding of the lung. The full extent of the injury could not be determined by a hasty and superficial examination. All movements being painful, further manipulation was avoided. The patient was transported three miles in a wagon, causing him extreme suffering. Treatment was first direct d to the relief of pain and shock; later a leather splint was molded to the back and retained in place by a broad canvas board. Retention of urine necessitated the use of a catheter. The man was subsequently removed to a hospital and placed on a water bed. A gangrenous spot appeared over the sacrum as early as the fourth day, increasing in extent until that bone was laid bare after separation of the slough. Repeated trials were made to obtain a radiograph of the injured portion of the spinal column, but with indifferent success, owing to the impossibility of securing a favorable position for the exposure. Enough was gained, however, to exclude fracture or dislocation of the vertebræ. Examination of the reflexes at this time showed entire absence of sensation in all parts below the distribution of the tenth dorsal nerve. There was also partial anesthesia in parts supplied by both ulnar nerves without impairment of motion, indicating that the lower part of the cervical enlargement of the cord had been interfered with to some extent. An acute cystitis and a large, sloughing sore contributed to lessen the chances of recovery by the tendency of the former to induce kidney complication, and the latter furnishing an open door to infection.

Operation.—On the eleventh day succeeding the injury a linear incision was made from the sixth to the ninth dorsal vertebra and the laminæ of the intervening vertebræ were removed. A large clot of blood was found in the spinal canal, the result of profuse extradural hemorrhage. About 4 inches of the cord was exposed, its membranes were found intact and presenting a normal appearance. Mechanical irritation of the exposed portion of the cord caused jerking of the limbs, more pronounced in the left, thus demonstrating that motor conduction was possible through the part supposed to be injured.

Post-operative History.—The operation did not seriously affect the patient; on the contrary, he stated that he felt much relieved, the girdle sensation was eliminated and the anesthetic area diminished. The passage of the catheter now caused some pain for the first time. Twenty-four hours later he could feel the hand placed on the abdomen and along both thighs, and could even distinguish the different toes when forcibly grasped. These encouraging signs, so promptly manifested, were considered favorable to the ultimate restoration of the functions of the cord. Contrary to expectation, no further improvement was noted, the limbs became atrophied and a gradual and progressive emaciation of the whole body, so commonly observed in spinal lesions, followed. The case went on for a month without anything worthy of record, the operative wound healed and the parts over the sacrum showed evidence of healing. Retention of urine had not been relieved. At the beginning of the fifth week there was a rise in temperature, preceded by a chill, with pain at base of right lung. These symptoms were thought to be due to a hypostatic or traumatic pneumonia. The patient's condition was critical for three weeks, when improvement was noted; the cough abated, appetite returned and there was a decided gain in flesh. This respite proved to be but temporary; the lung symptoms returned with greater severity, finally terminating in gangrene of the affected lung. Death occurred three months after the injury.

There was nothing to prove or disprove the wisdom of surgical interference in this case. Perhaps something was gained by the removal of the extradural clot, but so far as the cord itself was concerned enough time had not elapsed to demonstrate any permanent benefit.

Peritoneal Tuberculosis.—Dr. Lewis S. McMurtry asserts, in the *Cleveland Medical Journal*, that the symptomatology of peritoneal tuberculosis is so varied that, in its several stages and with diverse local and systemic manifestations, the diagnosis is most difficult, and in some instances impossible. This is especially true of cases other than those associated with pulmonary tuberculosis; and other than those seen late in which the clinical history is available, and in which advanced lesions afford characteristic clinical significance.

PANCREATIC TREATMENT OF CANCER, WITH REPORT OF A CURE.

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SAN ANTONIO, TEXAS.

When the first reports of the treatment of cancer with trypsin appeared I was greatly interested, as I had a patient with a large, rapidly growing tumor on the side of the neck. The condition was inoperable.

At first I used solutions of the trypsin powder, making sterile solutions of it and injecting them, but abandoned them as soon as I got the injectio trypsini, put up by Fairchild Brothers. I found that the directions for the treatment as published in THE JOURNAL[1] by Dr. John Beard, the discoverer, cover every detail. Though the injections of trypsin were rather painful, I used injections of cocain in a few instances, but found that they did not diminish the pain materially.

CASE 1.—This patient was a man with a large vascular tumor, undoubtedly a sarcoma, on the side of the neck. Although the trypsin treatment is supposed to give good results in these cases I failed to check the growth of this tumor, and the patient discharged me to be operated on by another physician. I have learned since that he bled to death the same day he was operated on.

CASE 2.—This patient was an elderly woman with cancer in both breasts and secondary cancers in the glands on one side of her neck, preventing her turning her neck. She was too feeble to walk when I started to treat her and she showed no improvement under the treatment. In this case I discontinued the treatment for some time before her death.

CASE 3.—This patient was a woman a little over 70 years of age. She had a cancer in the face which had destroyed one eye and extended into the antrum of Highmore and one side of the nose. At first the use of the lotio pancreatis and trypsin increased the size of the lesion in her face to an alarming extent. However, at the end of one month when I began to use the injectio amylopsini alternately with the injectio trypsini she began to improve at once and the lesion in the face began to heal rapidly until the eye cavity and the rest of the wound had a healthy skin over it. I began to treat this patient on Nov. 1, 1906, and continued the treatment until the middle of January, 1907. Her general health has improved markedly and the cancerous cachexia has given way to a healthy color at least as healthy as may be expected for a woman of this age. She is now able to do light housework all day.

CASE 4.—This woman, whom I am treating at present, has a cancer in one breast with secondary nodules in both axillæ and around the diseased breast. I began the treatment in this case about the beginning of January, 1907, and have had the same experience as in the previous case, i. e., there has been considerable sloughing of the cancerous tissue, producing a wound a little larger than a hen's egg. Every gland that was infected with the cancer has become intensely inflamed and painful and the entire tumor mass is sloughing away rapidly. I am now using the injectio amylopsini on alternate days with the injectio trypsini and the pain has been greatly relieved.

Microscopic Findings.—I had an opportunity to obtain a small piece of the tumor, and sections of this were most interesting microscopic studies. While I am not an enthusiast or a crank on the subject, I have had some experience as a pathologist, and I saw plainly that the cancer cells were broken up so that it was hard to find an entire cancer cell and the stroma of connective tissue was as intact and uninjured as any sound sections of cancer might show it. Therefore, I have reached the conclusion that the pancreatic treatment attacks the cancer cells only, which accounts for the shriveling and contraction of the tumor under this treatment.

Result.—This patient is recovering from all the bad symptoms, and I feel sure that it will be my second cure in a short time. Even now I consider her cured, as her general health is improving daily. The patient told me to-day that she felt much better all the time. However, up to this time she has had no faith in the treatment, and only came to me because the Roentgen-ray treatment had failed completely and her case had progressed until it was entirely inoperable on account of the secondary deposits of cancer.

In every case I have treated the tumor became inflamed as a result of the injections, although I kept the injections as far away from the tumor as possible. I believe the remedy will be used in much larger doses in future, as the trypsin itself is not poisonous and can be injected in indefinite doses into a healthy person. The size of the dose would then only be regulated by the amount of pain it produced in the tumor and the fever and weakness resulting from the reaction and the absorption of disintegrated cancer.

1. THE JOURNAL A. M. A., Feb. 17, 1907, p. 544.

A CASE OF PRIMARY CARCINOMA OF THE BILE DUCTS, WITH AUTOPSY.

B. O. LE BLANC, M.PH., M.D.
ST. GABRIEL, LA.

Patient.—Mrs. H. B., aged 71, a rather spare person, active and energetic.

History.—The patient had scarcely ever had a day's sickness in her life up to the present illness. The family history was excellent, except that one sister died of carcinoma of the uterus some years previously. The present illness began with malaise, slight jaundice, and an evening rise of temperature, about 100-101 F. This was treated as an ordinary catarrhal jaundice of malarial origin, but the symptoms gradually grew worse. Dr. A. A. Allain, of Bayou Goula, saw the patient at this time and recognized some serious trouble. I first saw her in consultation with him, then together throughout the case.

Examination.—The skin was deeply jaundiced. Heart, lungs and kidneys were normal, but analysis revealed an abundance of bile in the urine. Microscopic examination of the urine showed only bile pigments, no blood. Liver dulness was not much increased in the mammary line and there was but slight tenderness. A distinct, movable mass could be felt in the right hypochondrium which was made out to be a dilated gall bladder. There was another small mass to the left of the umbilicus resembling an enlarged gland. The stools were almost white, showing there was complete obstruction to the flow of bile. The patient became rapidly emaciated, the temperature ran a steady course ranging from 99 to 102 F., and resisted all treatment. A microscopic examination of the blood was made with negative results.

Diagnosis.—A diagnosis of cancer of the bile ducts was made, Dr. P. E. Archinard of New Orleans, concurring. The patient gradually sank into coma and died from cholemia. There was no pain at any time, either during or before the illness, that in any way suggested the presence of gallstones. Except for the particular site of the cancer the patient would probably have had a few months' lease of life, but as there was complete obstruction and the cancer was small, the patient had all the symptoms of cholemia. She died within eight weeks of the onset.

Autopsy.—The body was emaciated and intensely jaundiced. All the intestinal organs were bile-stained, the gall bladder was much enlarged; a tongue from the liver came down and partly covered the gall bladder. The liver was a little enlarged and colored dark green; it was smooth, showed no metastatic abscesses nor nodular masses. The spleen was very small and shriveled. The contents of the gall bladder were examined. The first fluid escaping was clear, then, as the contents drained, it became dark brown in color and mushy in consistence. The hepatic duct was found to be as large as the middle finger. A mass was found at the entrance of the common bile duct into the duodenum and involving the head of the pancreas and the ampulla of Vater. A piece of the mass examined microscopically proved to be carcinomatous.

New and Non-Official Remedies

THE FOLLOWING ARTICLES HAVE BEEN TENTATIVELY ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR INCLUSION IN THE PROPOSED ANNUAL, "NEW AND NON-OFFICIAL REMEDIES." THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT, BUT TO SOME EXTENT ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE FINAL ACCEPTANCE AND PUBLICATION IN BOOK FORM.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

(A list of all accepted articles is published on one of the advertising pages of The Journal in the first issue of each month.)

(Continued from page 948.)

IODO-MANGAN.

LIQUOR FERRO-MANGANI IODOPEPTONATI "DIETERICH."

Iodo-mangan is Ferro-mangan Dieterich with the addition of 0.45 per cent. of iodopeptone. Iodopeptone contains 15 per cent. of iodine.

The process of preparation is the same as that given under Ferro-mangan "Dieterich," with the addition of a solution of iodopeptone.

Iodo-mangan is a clear dark brown liquid of agreeable odor and taste, and a slight acid reaction.

Method of Valuation: After determination of the percentage of iron and manganese a test method should be employed, as described by Dr. Karl Dieterich in Helfenberg Annals, 1901, pages 162-165, to ascertain the percentage of halogens in Iodopeptone: About 0.5 iodopeptone to be thoroughly mixed with a few grammes of a mixture of 1 part potassium nitrate and 2 parts sodium carbonate either in a porcelain or platinum crucible. The mixture is then covered with a light layer of sodium carbonate, covered and carefully heated until reaction sets in. When finished a little potassium nitrate is added to obtain a smooth flux, then the molten mass is exposed to glowheat for about 15 minutes. After cooling it is dissolved in hot water, rinsed into a beaker, filtered, if necessary, acidulated with diluted acetic acid and any iodate reduced with sulphurous acid. The excess of acid is driven off by heat, the liquid strongly acidulated with nitric acid, again heated, until the gas formation ceases, then precipitated while hot with silver nitrate. The silver iodide is collected on a weighed filter, washed with very dilute ammonia water, as the preparation contains hydrochloric acid, dried and weighed.

Actions and Uses.—It is claimed to be a reconstructive tonic and blood making adjuvant, with favorable action in all affections of the glandular system.

Iodo-mangan is said to be useful in scrofulosis, rheumatism, etc.

Dosage.—4 to 16 Cc. (1 to 4 fluidrams), according to age, three times a day.

Manufactured by Chemische Fabrik Helfenberg A. G., near Dresden, Germany. (Reinschild Chemical Co., New York.) No patents. U. S. trademark applied for.

QUININE LYGOSINATE.

CHININUM LYGOSINATUM.

Quinine lygosinate, $CO(CH:CH.C_6H_4.C_{20}H_{24}N_2O_2)_2 = C_{57}H_{60}N_4O_5$, is a quinine compound of dioxy-dibenzal-acetone.

It is prepared by the reaction of quinine hydrochloride with sodium lygosinate.

Quinine lygosinate is a fine, orange yellow, amorphous powder, melting at 114° C. (237.2° F.), having a faintly aromatic odor and a bitter taste, which is gradually developed on account of its sparing solubility in water. It is slightly soluble in water, soluble in 6 parts of alcohol, in 20 parts of hot oil and readily soluble in chloroform and benzene. It is decomposed by acids and alkalies. It contains 70.8 per cent. of quinine.

Burned on platinum foil quinine lygosinate develops the odor of bitter almonds and leaves no residue. Its alcoholic solution dyes cotton gauze a bright yellow color, which becomes red-brown on drying.

If 1 Gm. quinine lygosinate is shaken with 20 Gm. of 20 per cent. sodium hydroxide solution and extracted twice with 10 Gm. of ether the quinine remaining after evaporation of the ether should not weigh less than 0.7 Gm. If the alkaline solution thus obtained be acidified, lygosin separates as a thick yellow precipitate.

It is incompatible with acids and alkalies.

Actions and Uses.—It is stated that this preparation is capable of preventing completely the development of cultures of staphylococcus. Given to rabbits by mouth in doses of 1 Gm. pro kilo of the body weight it is said to be entirely harmless. It is a styptic claimed to be useful in parenchymatous hemorrhages and free from unfavorable side effects, such as cauterization of the wound surfaces.

Dosage.—It is employed as a dusting powder, in bandages, gauzes, suppositories, in the form of court plaster and in glycerin suspensions.

Manufactured by Vereinigte Chininfabriken, Zimmer & Co., Frankfort a. M., Germany. (C. Bischoff & Co., New York.)

SODIUM LYGOSINATE.

LYGOSIN SODIUM.

Sodium lygosinate, $CO:(CH:CH.C_6H_4.ONa)_2 + 7H_2O = C_{17}H_{12}O_3Na_2 + 7H_2O$, is the sodium salt of dioxy-dibenzal acetone.

It is prepared by condensation of 2 molecules of salicylic aldehyde with 1 molecule of acetone and combining the product with sodium.

Sodium lygosinate occurs in glossy greenish prisms, soluble in 16 parts of water at 18.4° C. (67.12° F.), or in about 9.5 parts at 37° C. (98.6° F.). It is soluble to the extent of 1 per cent. in cold alcohol, easily soluble in hot alcohol and in glycerin. Its aqueous solution has a ruby-red color and is alkaline in reaction.

On ignition 1 Gm. of sodium lygosinate leaves a residue of sodium carbonate weighing 0.243 Gm. From the aqueous solution acids precipitate a thick yellow precipitate of diortho-cumarketone. The solution is fairly stable when kept in a cool place, protected from the air, and is not decomposed on boiling, but is decomposed by weak acids, even the carbonic acid of the air.

Actions and Uses.—The powder causes sneezing. Sodium lygosinate is said to possess a germicidal power similar to that of the silver salts, slightly weaker, but practically non-irritant.

It is claimed to be useful in gonorrhea, especially of the uterus.

Dosage.—Injections of a 3 to 8 per cent. solution daily or every second or third day.

Manufactured by Vereinigte Chininfabriken, Zimmer & Co., Frankfort a. M., Germany. (C. Bischoff & Co., New York.) German patent No. 110,521, U. S. trademark No. 40,177.

VERA DIASTASE.

A ferment of high diastasic power obtained from the pancreatic gland of the pig.

Vera diastase is a light yellowish white powder having a faint odor and a somewhat mucilaginous taste, not entirely soluble in water owing to the presence of a small amount of proteid matter. The diastasic principle, however, is completely soluble, so that its solutions may be filtered without loss of activity.

It is incompatible with strong alcohol, alkalies, acids, and other substances generally incompatible with ferments.

It is claimed to digest 150 times its weight of starch when tested according to the method of Biome (*Pharm. Rev.*, 1906, vol. 24, p. 260), substantially as follows:

A definite quantity of a 0.1 per cent. solution of vera diastase in water containing 25 per cent. of glycerin is added to 50 Cc. of a 2 per cent. solution of potato starch in water and kept at 40° C. for three hours, the mixture being thoroughly stirred with a spiral glass rod once in ten minutes. At the end of the digestion period the mixture is poured into a boiling mixture of 50 Cc. of water and an equal volume of Fehling's solution. The container and stirring rod are washed at once several times with boiling water and the washings added to the mixture and boiled. The cuprous oxide is then filtered by suction through asbestos in a Gooch crucible, dissolved in hot dilute sulphuric acid containing 1 or 2 Cc. of nitric acid and electrolized, the metallic copper being deposited on platinum electrodes. The maltose and dextrose equivalents of copper are taken from F. Allihn's tables.

Actions and Uses.—Vera diastase is recommended by the manufacturers as a digestant of starchy food in amylaceous dyspepsia and derived complaints.

Dosage.—0.130 Gm. (2 grains) or more.

Manufactured by Frederick Stearns & Co., Detroit, Mich. Not patented. Registration of trademark pending.

(To be continued.)

Naming of Carbon Compounds.—Ethylidene is the divalent radicle $CH_3.CH''$, thus 1.1-dichlorethane is also called ethylidene chlorid or ethidene chlorid. The term has also been used to indicate the radicle $CH_3.C'''$ thus chloral, CCl_3CHO, has been called trichlor ethidene aldehyd.—*Pharm. Rev.*, August, 1906.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

103 DEARBORN AVENUE . . . . CHICAGO, ILL.

Cable Address . . . "Medic, Chicago"

Subscription price.....Five dollars per annum in advance

[*For other information see second page following reading matter.*]

SATURDAY, MARCH 23, 1907.

THE "ALKALINITY" OF THE BLOOD.

Until recently our knowledge of the character of the chemical reaction of the blood was very imperfect and inexact, and at present the more precise information which has been obtained through physicochemical studies seems to be possessed by few except those engaged particularly in physiologic research and teaching. The ideas of too many physicians regarding this vital question are limited largely to reminiscences of statements in the older text-books of physiology, to the effect that the blood is "amphoteric" in reaction, because with some indicators it reacts as if alkaline, whereas with others it reacts as if very faintly acid. It is not unusual to see statements in current literature to the effect that in certain diseases the alkalinity of the blood has been found to be reduced, and that it is important for the maintenance of resistance to infection that the alkalinity of the blood be kept at a certain normal figure.

As a matter of fact, however, the blood is not appreciably alkaline at all, strictly speaking. The real alkalinity of a fluid depends on the number of hydroxyl ions (OH ions) free in it, and the number of free hydroxyl ions in the blood is so small that the most exact methods of physical chemistry fail to demonstrate that blood serum contains more of these ions than does the purest specimen of distilled water. Indeed, it is absolutely essential for the animal organism that the blood serum always remain at very near the neutral point, for animal cells seem to be extremely sensitive to the influence of free ions, whether positive (H) ions or negative (OH) ions. The most minute quantities of free ions of either kind cause profound alterations in the function and morphology of all animal cells with which they come in contact, always with fatal effects if the ions are at all numerous. Consequently, we find that although the blood plasma is constantly exposed to possibilities of change of reaction through the addition of various sorts of products of cellular metabolism, yet under all conditions the number of free H and OH ions is kept at a most minute point and always nearly balancing one another. This property of the blood to preserve almost exact neutrality under all conditions depends on an elaborate mechanism of defense, consisting on the one hand of the eliminatory organs which modify the composition of the blood according to the nature of the fluid they excrete, and on the other of the proteids, the phosphates and the carbonates of the plasma. The latter have the property of forming, in the case of proteids, compounds with the free ions which do not readily dissociate, and hence reduce the number of ions; in the case of the carbonates and phosphates, dissociation results in the liberation of both H and OH ions, and hence the tendency of either variety to accumulate in excess is depressed.

The puzzling phenomenon that with some indicators the blood appears to be alkaline and with others acid, does not mean that the blood is either acid or alkaline, much less that it is both. It depends, rather, on the nature of the indicators employed, for some indicators change their color when in the presence of a minute quantity of free hydrogen ions (e. g., phenolphthalein), while others change color in the presence of minute quantities of hydroxyl ions, although relatively little affected by free hydrogen ions. It thus happens that some indicators will show evidence of the presence of free hydrogen ions even where bases may be present at the same time to which they do not react; e. g., phenolphthalein reacts to the acidity of the dilute solution of carbonic acid present in the blood, whereas other indicators (e. g., litmus) are not affected by the small number of free hydrogen ions in the blood, but react to the weak bases there present and suggest that the blood is of alkaline reaction. Consequently, if we titrate the blood against a very dilute acid until one of the latter class of indicators shows a neutral or beginning acid reaction we find approximately how much basic material the blood contains with which to defend itself against actually becoming acid. Conversely, we can learn something as to how much defense against alkalies the blood possesses by titrating against alkalies with phenolphthalein for an indicator. As can be seen, this is a very different matter from determining the acidity or alkalinity of a simple solution of acids or bases, and the distinction must be understood by anyone wishing to consider for any purpose the reaction of the blood or other body fluids that contain proteids, phosphates and carbonates.

The theories of the action of indicators and the principles of the chemical reaction of the blood are both concisely discussed in their relation to one another in a recent article by Moore and Wilson,[1] to which the reader seeking further information is referred. These authors have devised what seems to be a practical clinical method for studying the power of the blood to maintain its normal neutrality, or, as they call it, the "reactivity" of the blood. This method is based on the principles outlined above, and while not attempting to measure the almost negligible degree of free alkalinity, it does indicate clearly the exact range of reactivity possessed by the blood and shows how much of this property depends on the blood proteids and how much on the inorganic con-

1. Biochemical Jour., 1906, vol. I, p. 297.

stituents. This method should afford some interesting information if applied to large series of cases of different diseases. The chief result so far obtained by Moore and Wilson is that in cancer the basic reactivity (i. e., the power to neutralize acids) is constantly increased, apparently depending on an increased power of the blood proteids to bind acids. It will be interesting to learn if the older ideas of the deficiency of the blood in alkalinity in patients with infectious diseases, nephritis and wasting diseases are substantiated by this new method.

THE INDUSTRIAL DEATH ROLL.

In a recent number of a magazine[1] devoted to sociological questions there is an interesting discussion on the subject of industrial accidents in the United States, their increasing frequency, and the almost total lack of legislation for their prevention and for compensation of the victims. Nowhere is the contrast between this country and Europe more striking than in this matter of industrial accidents. While England, Germany, France and Holland have all lowered their death rate from this cause we have not even begun to count ours. We have no data which can be regarded as even approximately complete, for the majority of non-fatal accidents are never reported at all and the fatal ones are reported only in part. There are only ten states which attempt to secure statistics of industrial accidents, and their figures are of little value, for in one state only[2] is the reporting of accidents compulsory. There is no agreement as to what constitutes an accident and there are no statistics as to the number of men employed in each individual industry. We are dependent, therefore, chiefly on the reports of insurance companies and workmen's societies, from which sources, unsatisfactory as they are, we can gather confirmation of the universal impression throughout the country that these accidents are not diminishing but increasing in numbers, and that the public is forced each year to assume the expense of a greater number of killed or incapacitated workmen.

In the one field of industry in which accidents are recorded, railroading, the death rate apparently has gone up to a startling degree. While the number of men employed by the railroads has not doubled since 1889 the number of employés killed by them has trebled. In mining and in the great iron and steel mills two factors have tended to increase the danger to life and limb, namely, the increased use of machinery and the employment of foreigners who can not understand the orders given by English-speaking foremen. John Mitchell estimated that 11,986 men were injured or killed in mines in 1904. A coroner in Allegheny county said recently that the number of deaths by accident in the Pittsburg mills is appalling. "The life of a foreigner employed in the mills is given less consideration than is the life of a horse or mule."

Governor Hughes of New York recently stated[1] that the number of industrial accidents in the United States has been estimated at over 500,000 annually and much of this sacrifice of life and productive efficiency is both useless and preventable. The preventable accidents are said to be due to carelessness in the use of explosives, unguarded or defective machinery, "speeding up" and exhausting hours of work. In Chicago last year 156 out of the 1,358 men in the Bridge and Structural Iron Workers Union were killed or disabled, most of the casualties being due to insecure scaffolds and flooring or to falling beams. We have ten times as many deaths from boiler explosions as England has among an equal number of workmen.

It is undoubtedly true that the American workman is more ready to take risks and to chafe under restrictions than is his European brother, but this is not enough to account for the fact that the United States alone of the civilized nations has an increasing death rate from accidents. As the magazine previously mentioned says: The cause may be found partly in the lack of a proper insurance system. We are the only nation of industrial importance which leaves the question of proper compensation for accidents to be fought out between employers' insurance associations and personal injury lawyers. If the former win the community must assume the support of the maimed workman or of his family if he is killed. If the workman wins a lump sum is handed over to him, most of which goes to his lawyers, and the remainder is seldom of lasting benefit to a man unused to handling sums larger than his weekly wage. In the end he, too, is apt to become a burden on the community.

Every physician who has worked in the public hospitals or dispensaries of our larger cities, to say nothing of the physicians employed by railways and factories, knows that the death roll of industry is terribly high and the number of disabled still higher. In one way or another, through private charity, hospitals, orphanages, asylums and poorhouses, the community finally assumes the charge of those who fall in the industrial conflict. It seems only reasonable to demand that the industries in which these calamities occur should help to bear their cost, a demand which has been crystallized into law in every industrial nation save our own. Germany has a compulsory insurance system the cost of which is divided between the state, the employer and the workman. The British prefer a law which compels the employer to indemnify an injured workman for loss of wages due to an accident unless it can be shown that the workman was clearly to blame. They assume that the cost of used-up human bodies—like the cost of used-up machinery—should be borne by the employer.

1. Charities and the Commons, Feb. 2, 1907.
2. Wisconsin requires that every accident be reported which temporarily or permanently incapacitates the recipient for work.

1. At the opening of the first International Exposition of Safety Devices and Industrial Hygiene, New York City, Jan. 28, 1907.

ORIGINS OF TUBERCULOSIS.

Twenty-five years ago nearly all physicians believed tuberculosis a hereditary disease. Now nearly everyone considers that heredity plays at most a minor rôle and that the disease is acquired in the great majority of cases. The problem now at issue is how it is acquired. Koch declares that it is practically always due to the inhalation of germs from other human beings who have tuberculosis, while von Behring proclaims quite as confidently that it is due to milk infection.

In a recent article[1] von Behring reiterates this statement and insists that practically only such individuals acquire tuberculosis as have had the germs of the disease brought into their bodies with the milk in childhood. These milk bacilli work their way through the digestive organs and lymphatics into the blood and finally, he asserts, the lungs become infected from the blood. "Even such tubercle bacilli as are inhaled with the air through the larynx into the lungs, or such as produce infection in the mouth and nostrils, do not act directly on the lungs nor find their way into them by any continuance of process, but always go around by way of the lymphatics or blood vessels before reaching the lung." The report of the British Royal Commission on Tuberculosis does not use such strong terms, but it expresses the opinion that cows' milk is responsible for tuberculous infection in a large number of cases.

While Koch regards infection in adults as the most potent cause for the origin of phthisis, von Behring maintains that the infection occurs in childhood. Even in cases in which tuberculosis occurs at a much later period in life, he asserts that it is the result of germs acquired in infancy through the medium of mother's milk, the nurses' milk, and, most frequently of all, through cows' milk. This is not so different from previous opinions as might be thought if it is remembered that the Germans have a proverb that we are all a little tuberculous, and statistics have shown that considerably more than one-half of all those who die from other diseases present a tuberculous lesion in their lungs at autopsy, though they have never shown any signs of the disease. This would seem to indicate that most people had acquired the disease at an early susceptible period, but had been saved from its severe ravages by that tendency to cure which exists in most human beings, if Nature is only given a proper chance, and which constitutes the most encouraging feature in the present crusade against this disease. Cornet[2] in the second edition of his book on "Tuberculosis," just issued, adheres to the old view that germs are inhaled directly into the lungs. The principal reason for this contention on his part is that since coal, marble and various other dust particles gain entrance by the respiratory tract, why should we assume a different, round-about, and at present, at least, a more problematical, route for the tubercle bacillus. In some cases infection may occur by way of the digestive tract, tonsils, or lymph paths, but by far the great majority of cases occur from inhalation.

The fact that authorities like these quoted are divided is the best proof that we do not yet know the exact mode of infection in this disease, and emphasizes the necessity for even greater care with regard to the food, habits and environment of children. In the meantime there is plenty of room for study and abundant opportunity for the gaining of prestige by any progress that may be made in solving this problem. There is here an excellent chance for young American physicians to accomplish original work of high order that will be rewarded by fame and will redound gloriously to the honor of American medicine.

1. The Independent, New York, March 7, 1907.
2. Die Tuberculose, Vienna, Hölder, 1907.

ADDITIONAL BUILDING FOR THE HYGIENIC LABORATORY.

The Hygienic Laboratory of the U. S. Public Health and Marine-Hospital Service is an institution that is doing splendid work in the interest of public health. Started in New York in 1887, it was moved to Washington in 1891, and in 1901 Congress appropriated for it five acres of ground on the site of the old Naval Observatory, overlooking the Potomac river and adjoining the Naval Medical School. Since these facilities were secured for the laboratory its work has been broadened, and to-day it is the most important of any work undertaken by the Government as far as the health of the people is concerned. When the present building was erected in 1902 the work of the laboratory was confined to pathology and bacteriology. Since that time zoology, pharmacology and chemistry have been added by law. Naturally, with the broadening out of the work there has come the need of larger and better buildings, since the growth of the laboratory during the last five years has greatly overcrowded the present facilities. All persons interested in the maintenance of public health will rejoice, therefore, that the last Congress made an appropriation of $75,000 for a new building, which will be a replica of the first, in accordance with the plan looking to a harmonious group of buildings as the institution may develop.

WISCONSIN'S MEDICAL LAW IN OPERATION.

The last legislature of Wisconsin, thanks to the club wielded by a subsidized press, failed to pass the bill controlling the sale of "patent medicines" in that state. It did, however, so modify its medical practice law as to grant to the State Board of Medical Examiners the power to bring about the repression of fraudulent and indecent advertising by fake medical concerns and quacks. We have read[1] with much satisfaction that a notorious concern of Milwaukee, which for years has polluted the city and country press of Wisconsin with its flamboyant and indecent advertisements, has at last been brought to time. The "Wisconsin Medical Institute," *alias* the "Milwaukee Medical Institute," *alias*

1. Wisconsin Medical Journal, January, 1907.

"The Master Specialist" has been enjoined from pursuing its questionable business and warrants have been issued for the arrest of its president and its secretary-treasurer. As our contemporary says, it is to be hoped that the prosecution of this concern will be as successful as its importance demands and that the "Institute," in spite of the support which it will doubtless receive from the newspapers, will be put permanently out of commission. Wisconsin is to be congratulated on having men on its medical board who are alive to the best interests of the public and the profession.

THE PHYSICIAN AS TEACHER.

Physicians are acknowledging a duty to contribute whatever there is in the science and art of medicine for the general welfare; and this in a way apart from the customary office and consultation practice. Such among them as have the aptitude are lecturing and writing on the prevention of disease, hygienic and physiologic laws, the influence of heredity, the essential facts concerning tuberculosis—by far the most death-dealing of all agencies—and many other topics concerning individual and communal health. Such lectures are being given by members of the faculty of Harvard Medical College, and under the auspices of the New York Academy of Medicine, Chicago Medical Society and other county medical societies, as well as the New York Board of Education and other organizations that could well be mentioned. That these contributions to the common weal are very valuable indeed, no one can question who reflects that there is really nothing in the whole range of human possession so precious to a man as his health. No nation can rest secure which has not some regard for the sanitary essentials by which the public health must be safeguarded. One of the most salutary ways in which our profession can help the community is in demonstrating the application of scientific principles to the ordinary humdrum affairs of everyday life. Science is only another term for trained and orderly common sense; and there is probably nothing more needed by the people of the United States to-day than the application of such science to their affairs, both personal and communal. Never perhaps has any nation possessed so much knowledge and so little wisdom. Never has there been such riotous jumping to false conclusions from unfounded, or half-examined, ridiculous, irrelevant or untruthful data; never so much false reasoning from absurd and ill-related analogies. Let him who considers this statement far-fetched observe the many "faith cures" and other charlatanries so rampant at the present day.

RELATIONS OF MATERNAL AND FETAL CIRCULATIONS.

The case reported by Corrigan last week,[1] in which methylene blue was given to a woman during the last six months of her pregnancy, is of interest both in regard to the composition of the liquor amnii and the action of the kidneys of the fetus *in utero*. In the amniotic fluid no coloring matter was noticed, while the urine passed after birth by the infant contained methylene blue. Similar observations have been made by others. Thus Gusserow administered benzoate of soda to the mother and it appeared as hippuric acid in the urine of the newborn child. Schaller in 1899 gave phloridzin and examined the fetal urine and amniotic fluid at various periods of pregnancy. He found that there is no regular secretion and periodic excretion of fetal urine even near to term, but that fetal renal activity usually begins when the process of labor induces changes in the fetal circulation, though urination is rare during labor. Such observations have been responsible for the prevailing belief that the amniotic fluid is mainly derived from the mother. Additional support is derived from the analysis of the fluid itself, it being found to contain an infinitesimal proportion of the constituent salts of the fetal urine. Moreover, cases of imperforate urethra are not necessarily associated with deficient liquor amnii, nor even with distension of the bladder, for though this may be found, Joulin has shown that in the majority of cases it does not exist. It is highly probable that fetal waste products escape through the placenta into the maternal circulation, and it may be that variations in the activity of the fetal kidneys depend on the manner in which the placenta performs its function. The chorionic epithelium is probably concerned with the performance of various vital processes, e. g., selection, elaboration, excretion and even digestion, which are all the more complex, because it determines transmission from mother to fetus and from fetus to mother. It is this double rôle which makes the placenta one of the most remarkable structures in the human organism.

1. THE JOURNAL A. M. A., March 16, 1907, p. 946.

LET THE PRESCRIBER KNOW.

The specious argument has been advanced by the nostrum defenders that if the ingredients of "patent medicines" must be declared to the laity the prescriptions of physicians should also be given in English so that the patient may know what he is taking. This is a most ingenious sophistry. The medical profession has never suggested that "patent medicines" should be labeled so that the *patient* may know what he is taking. The whole basis of this agitation against secrecy is that the *prescriber* must know what he is giving. When a person employs a physician the latter is the prescriber, and he should know the composition of every medicine he uses; but if this person prescribes for himself he is the prescriber and should know what he prescribes. Now, if a physician's prescription is to be passed about among the laity we agree that it should have the English equivalents in order—we repeat—that the prescriber may know what he is using. If the public decides that it will take in its own hands a certain portion of the prescribing that is done, then the public owes it to itself to be better informed as to the contents of the remedies used and not to depend on false statements made in advertisements and on wrappers simply to sell the goods.

Medical News

ALABAMA.

Money for Medical Department.—The lower branch of the legislature on February 20 passed a bill appropriating $1,673,000 to further the interests of education. Of this the Medical College of Alabama, Mobile, is to receive $65,000.

ARIZONA.

Personal.—Dr. Charles H. Jones, Tempe, has been seriously ill with influenza.——Dr. Charles F. Hawley, Mesa, has removed to Bisbee.——Dr. D. D. Whedon, Tucson, has been appointed physician of Pima County.

Election.—At a meeting of the Cochise County Medical Society, held at Bisbee, March 2, the following officers were elected: President, Dr. Fenn J. Hart, Bisbee; vice-presidents, Drs. Charles L. Caven, Bisbee, John E. Bacon, Tombstone, and James J. P. Armstrong, Douglas; secretary-treasurer, Dr. Edward S. Godfrey, Jr., Lowell, and censor, Dr. George A. Bridge, Bisbee.

ARKANSAS.

Do Not Want Names Published.—At a recent meeting of the Jefferson County Medical Society, the members of the society were urged to refrain from having their names published in connection with cases in which they are interested.

Nostrum Law.—The Patterson bill, which requires every proprietary remedy sold in the state to have its formula printed on the label, was so amended by the committee on public health as to extend the provisions of the bill to physicians' prescriptions, the only requirement being that prescriptions must be written in English.

Society Meeting.—The physicians of Walnut Ridge and Hoxie recently organized an association at the former place and elected the following officers: President, Dr. John E. Pringle, Hoxie; vice-president, Dr. Ed. T. Ponder; secretary, Dr. John C. Land, and treasurer, Dr. John C. Hughes, all of Walnut Ridge.

Epidemic Diseases.—Smallpox is reported to be prevalent in Fort Smith.——There are several cases of smallpox of mild type at Piggott.——Scarlet fever is prevalent at Pine Bluff. Most of the cases are of a mild type and no fatalities have been reported. An order was issued by the board of health instructing the city officials more rigidly to enforce the scarlet fever quarantine.

CALIFORNIA.

Hospital News.—Drs. John H. Mallery and Edward J. Hill, Eureka, and Charles W. Mills, Arcata, have opened a hospital for women and children in Eureka.——The executive board of the San Francisco Relief Corporation, March 8, made an appropriation or $10,000 to St. Mary's Hospital.——Oakland Central Hospital has been incorporated by a number of physicians who plan to erect a building to cost about $60,000.

Personal.—Dr. Albert C. Winn, Tomales, who has been seriously ill with septicemia, is convalescent.——Dr. I. M. Dudley Fulton, Los Angeles, has returned from Germany.——Dr. Harris Garcelon has been appointed city health officer, and Dr. Ethel L. Leonard, city bacteriologist of Los Angeles.——Dr. Charles F. Millar, for seven years chief of staff of the Emergency Hospital, San Francisco, has resigned on account of ill health, to take effect April 1.——Dr. Reuben C. Hill of the Emergency Hospital service, San Francisco, narrowly escaped death by suffocation at the Harbor Hospital, March 3.

CONNECTICUT.

Asks Provision for Epileptics.—Among the important recommendations made to the General Assembly by the State Board of Charities is one asking that special provision be made for the care of sane epileptics of any age.

Tuberculosis Hospital.—Two bills have been introduced in the legislature regarding the Hartford Tuberculosis Hospital. One appropriates $50,000 for the two years ending Sept. 30, 1909, and the other provides that $6 per week shall be paid by the state for each patient under treatment.

Personal.—Dr. Henry F. Stoll, Hartford, has been appointed medical director of the Hartford Life Insurance Company.——Dr. Thomas G. Alcorn, Thompsonville, has been appointed a member of the medical staff of the Springfield Hospital.——Dr. Frederick G. Graves, Waterbury, was seriously injured in a recent collision between his carriage and that of Dr. Joseph N. Bellmare.——Dr. Mark S. Bradley, Hartford, has been appointed assistant medical director of the Connecticut Mutual Life Insurance Company.

Vital Statistics.—During January 1,679 deaths occurred in the state, equivalent to an annual mortality of 20.2 per 1,000. The deaths numbered 198 more than in December, 339 more than in January of last year, and 322 more than the average number of deaths for the five years preceding. Infectious diseases caused 307 deaths, or 18.2 per cent. of the total mortality. The chief causes of death were: Pneumonia, 276; nervous diseases, 168; heart disease, 166; consumption, 153, and influenza, 136. Infectious diseases were reported as follows: Smallpox, one case; measles, 219 cases in 38 towns; scarlet fever, 193 cases in 40 towns; cerebrospinal meningitis, 2 cases in one town; diphtheria, 185 cases in 37 towns; whooping-cough, 145 cases in 23 towns; typhoid fever, 41 cases in 18 towns, and consumption, 47 cases in 17 towns.

Society Elections.—At a meeting of the New Haven Medical Society the following officers were elected: President, Dr. Henry W. Ring; vice-presidents, Drs. Edward M. McCabe and Louis M. Gompertz; secretary, Dr. Edward R. Whittemore, and treasurer, Dr. Robert E. Peck.——At the annual meeting of the Waterbury Medical Association Dr. John D. Freney was elected president; Dr. Charles W. S. Frost, vice-president, and Dr. Edward W. Goodenough, secretary-treasurer (re-elected).——At the annual meeting of the Norwalk Medical Association Dr. Frederick B. Baker, South Norwalk, was elected president; Dr. William J. Tracey, Norwalk, vice-president, and Dr. Henry C. Sherer, South Norwalk, secretary-treasurer.——At the annual meeting of the Celtic Medical Society, held at Waterbury, Dr. Edward W. McDonald was elected president; Dr. Bernard A. O'Hara, vice-president; Dr. John D. Freney, secretary, and Dr. John F. Hayes, treasurer, all of Waterbury.

DELAWARE.

Medical Practice Act.—The state senate, on March 12, considered the new medical practice act which had already been passed by the house. This act takes the place of the medical practice act passed April 18, 1895, and amended in 1899. It provides that all persons desiring to practice medicine and surgery in the state shall be examined and licensed by the State Board of Medical Examiners and that no person not so licensed shall attend the sick in any way for compensation. This clause of the bill was strenuously opposed by the Christian Scientists of Delaware, a number of whom presented arguments against the bill before the senate. After hearing them, as well as the representatives of the State Board, and of the medical profession, the bill was unanimously adopted.

DISTRICT OF COLUMBIA.

Registration of Consumptives.—The House District committee has voted to report favorably on the bill requiring registration of all cases of tuberculosis. The Senate District Committee is also said to favor the passage of the measure.

Tuberculosis Hospital.—Bids have been received by the commissioners of the District for the construction of the tuberculosis hospital, for which $100,000 has been appropriated, $80,000 of which is to be used for purposes of actual construction.

Dispensary Moved.—The Free Dispensary for Consumptives has been moved to the new building of the Associated Charities Commission at 923 Eighth St., N.-W. Clinics are held on the first four afternoons of the week from 2 to 3 and on Friday evening from 7:30 to 8:30.

Personal.—Dr. Francis B. Loring has been appointed local oculist for the Baltimore & Ohio Railroad, vice Dr. E. Oliver Belt, deceased. Dr. Loring was selected on account of previous valuable work in the examination of the eyesight of railroad employés.——Dr. J. Mortimer Lynch, Washington, has been appointed assistant surgeon at the National Soldiers' Home, Hampton, W. Va.

GEORGIA.

Nostrum Distribution Barred.—The Atlanta Board of Health has adopted a resolution forbidding the free distribution of medical samples in the city.

Personal.—Dr. Marcus F. Carson, Griffin, has been elected physician of Spalding County.——Dr. John W. Gillespie, Albany, slipped and fell from the loft of his barn, spraining his thigh and ankle.

Alumni to Meet.—Preparations are being made by the medical faculty to entertain the Alumni Association of the Medical Department of the University of Georgia, Augusta, which is to meet in that city May 1.

Medical Society Meetings.—The Clarke County Medical Society held its annual meeting at Athens and elected the following officers: President, Dr. Isham H. Goss; vice-president, Dr.

Henry M. Fullilove; secretary-treasurer, Dr. B. O. Quillian, and censors, Drs. William B. Conway and Samuel C. Benedict, all of Athens. The question of life-insurance fees was discussed and it was decided by the society that a minimum fee of $5 should be charged. A committee consisting of Drs. Isham H. Goss, Samuel C. Benedict and William B. Conway, was appointed to draft resolutions setting forth the action of the society.——The Laurens County Medical Society met at Dublin and elected the following officers: President, Dr. Robert H. Stanley; vice-president, Dr. Ezra New, and secretary-treasurer, Dr. Joseph M. Page, all of Dublin.——The Houston County Medical Society was recently organized at Perry and the following officers were elected: President, Dr. Oscar G. Singleton, Fort Valley, and secretary-treasurer, Dr. Robert L. Cater, Perry.——At a meeting of the Thomas County Medical Society, held in Thomasville, March 7, the following officers were elected: President, Dr. Henry A. Vann, Boston; vice-president, Dr. James N. Isler, Meigs; secretary-treasurer, Dr. Joseph B. Palmer, Thomasville, and Drs. Augustus P. Taylor and Joseph B. Palmer, Thomasville, delegates to the state association.

ILLINOIS.

Smallpox.—Dr. Charles E. Crawford, Rockford, made an inspection of the smallpox epidemic at East Aurora. He found six cases, all of a mild type.

Hospital Open for Inspection.—The new Oak Park Hospital, which is nearing completion, after five years endeavor on the part of Dr. John W. Tope, was opened to visitors March 16. The hospital is in charge of the Sisters of Misericordia, Montreal, Quebec, and is to be formally dedicated April 3.

Inspection of Medical Colleges.—At a meeting of the State Board of Health, March 15, arrangements were made for the annual inspection of the medical colleges of Chicago and Cook County. These examinations are held by the board to ascertain whether or not all the provisions under which they are operating under the state law are being observed.

Personal.—Dr. James N. Kearney, Lamont, has been appointed a member of the staff of the Illinois Northern Hospital for the Insane, Hospital, vice Dr. Claude F. Shronts, resigned.——Dr. Charles E. Ericson has been appointed assistant surgeon at the Soldiers' Home, Quincy, vice Dr. George E. Rosenthal, deceased.——Dr. Ralph T. Hinton, Quincy, has been elected secretary of the Adams County Medical Society, to fill the unexpired term of the late Dr. George E. Rosenthal.

Senate Approves Nostrum Vendors.—Senate bill 341, introduced by Senator McKenzie of Joe Daviess County, which repeals the itinerant-vendor section of the medical practice act, and permits the unrestricted practice of all "proprietary" medicine men who pay a tax of $5 a year, passed the senate March 19, and is under consideration in the house of representatives, with house bill 474, introduced by Speaker Krape of Stephenson County, which is of the same purport.

Chicago.

Smallpox.—During the week ended March 18, eight cases of smallpox were found and the patients sent to the Isolation Hospital. An unvaccinated Pullman car porter on the Rock Island System is said to have been responsible for at least three of these cases.

Emergency Hospital in the Loop.—The Iroquois Memorial Emergency Hospital Association has offered to erect an emergency hospital at a cost of not less than $25,000, in or near the loop, if a site be provided and if the maintenance of the institution be undertaken.

Deaths of the Week.—During the week ended March 16, there were 684 deaths reported, 34 more than for the previous week and 103 more than for the corresponding week of 1906. The mortality is equal to an annual death-rate of 16.92 per 1,000. Pneumonia led death-causes with 158, followed by consumption with 77; heart disease, with 52; violence, including suicide, with 47; nephritis, with 40, and cancer with 34. Scarlet fever caused 18 deaths; diphtheria and influenza each 9; whooping cough 7; measles 3, and typhoid fever 2.

Hospital Notes.—In the contest for the most popular hospital, which the Children's Hospital Society has been conducting for the last month, the Presbyterian Hospital was declared to be the victor, receiving an elaborate set of linen. By this contest $2,500 was added to the funds of the society. The benefit performance of "Peter Pan" at the Illinois Theater, March 10, also realized $4,500 for the Children's Hospital Society.——An appropriation of $10,000 has been voted by the Chicago Board of Underwriters to endow a room in the Presbyterian Hospital in memory of the late Edward M. Teall, formerly president of the board.——Subscriptions are being solicited for the work of the Chicago Tuberculosis Institute, which wishes to raise $25,000 for a tuberculosis dispensary, a day camp, and a tuberculosis hospital; for the investigation of hygienic conditions of factories, stores and schools and for a lecture course.

INDIANA.

License Revoked.—The State Board of Medical Examination and Registration is reported to have revoked the license of Dr. John W. Arnold, Columbus, on the charge that he had performed a criminal operation.

Unlicensed Practitioner Fined.—William DeHoff, a "cancer doctor" who has been operating in Hartford City for some time and who was charged with practicing medicine and surgery without a license, is said to have pleaded guilty and to have been fined $20 and costs, amounting in all to $35.40.

Malpractice Suit Dismissed.—In the case of Mrs. Etta Hopkinson against Dr. Samuel C. Wilson, Anderson, in which $5,000 damages was demanded on account of alleged improper treatment of a fractured wrist, the case was dismissed on account of the variance between the evidence adduced, and the allegations contained in the complaint.

Hold Annual Meetings.—The second annual meeting of the Twelfth Councilor District Medical Society was held at Fort Wayne, February 12, and the following officers were elected: President, Dr. Samuel H. Havice, Fort Wayne; vice-presidents, Drs. Dwight W. Dryer, La Grange, and James S. Boyers, Decatur; secretary, Dr. Edmund M. Van Buskirk, Fort Wayne, and treasurer, Dr. David C. Wybourn, Sheldon.——The Sullivan County Medical Society held its annual meeting in December and elected officers for the coming year. The membership of this society now amounts to 33. An auxiliary society has been organized for the purpose of holding monthly meetings.

IOWA.

Society Elections.—Muscatine County Medical Society elected the following officers at a recent meeting: President, Dr. Frederick H. Little, Muscatine; vice-president, Dr. Channing B. Kimball, West Liberty; secretary-treasurer, Dr. Thomas F. Beveridge, Muscatine, and delegate to the state society, Dr. Elbridge H. King, Muscatine.——At the annual meeting of the Southwestern Iowa Medical Society, held in Creston, February 21, the following officers were elected: President, Dr. Franklin W. Sells, Osceola; vice-president, Dr. John A. Rawls, Creston; secretary, Dr. John W. Reynolds, Creston, and treasurer, Dr. Joseph P. Claybaugh, Creston. It was decided to hold the midsummer meeting of the society at Red Oak in August.

KANSAS.

Increase Secretary's Salary.—The House of Representatives has voted to increase the salary of the secretary of the State Board of Health from $1,800 to $2,500 a year.

License Medicine Vendors.—The Senate, in committee of the whole, has recommended for passage the house bill which fixes a license fee of $50 for each itinerant medicine peddler in each county in the state in which he operates.

Election.—Lyon County Medical Society, at its annual election and banquet, held in Emporia, March 5, elected the following officers: President, Dr. David L. Morgan; vice-president, Dr. Howell E. Davis, and secretary-treasurer, Dr. Clarence A. Neighbors, all of Emporia.

Measles Epidemic.—In Topeka 69 cases of measles were under quarantine March 13.——Armourdale is said to have 75 cases of measles.——Measles is reported to be epidemic at Leavenworth, where more than 100 cases have been reported.

New Editor for State Journal.—At the February meeting of the Council of the Kansas Medical Society Dr. George H. Hoxie, editor of the *Journal*, presented his resignation, to take effect May 1. Dr. Charles S. Huffman, Columbus, secretary of the Kansas State Society, was elected editor.

Personal.—Dr. Ralph A. Light, Chanute, has been appointed a member of the State Board of Medical Examination and Registration.——Dr. Clement E. Grigsby, Lansing, who has been physician at the state penitentiary for eight years, is reported to have been dismissed by Warden Haskell because of disagreement over the conduct of the prison.——Dr. Joseph B. Carver, Fort Scott, sustained severe sprains of the hip and the left wrist in a runaway accident recently.——Dr. Cassius M. H. McGown, Chanute, who was seriously injured by a fall about four months ago, is now reported convalescent.

KENTUCKY.

Next State Board Examination.—The next examination by the Kentucky State Board of Medical Examiners will be held

April 23 and not April 2-3, as was erroneously announced in THE JOURNAL last week.

Faculty of Combined Medical Colleges.—The names of those who will probably compose the faculty of the combined Hospital College of Medicine and Louisville Medical College, will be selected, so far as the Hospital College of Medicine is concerned, from the following list of names: Drs. Philip R. Taylor and Samuel G. Dabney, diseases of the eye, ear and throat; Drs. Frank C. Wilson and Walter F. Boggess, medicine; Dr. Samuel G. Dabney, physiology; Dr. Philip F. Barbour, pediatrics and chemistry; Dr. Edward Speidel, obstetrics and gynecology; Drs. H. Horace Grant and George A. Hendon, surgery, and Dr. John E. Hays, anatomy.

MAINE.

New Member of State Board.—Franklin C. Robinson, Brunswick, has been appointed by the governor a member of the State Board of Health.

Tuberculosis Exhibit.—The tuberculosis exhibition at Portland began February 28 and continued until March 5. The object was to teach the people the nature of tuberculosis and the proper methods of combating it.

Epidemic Diseases.—Rockland is suffering from an epidemic of diphtheria which threatens to assume serious proportions. The cases are reported to be widely scattered throughout the city.——A number of cases of epidemic cerebrospinal meningitis have been reported to the State Board of Health from Rumford Falls and two deaths have occurred.

Tribute to Dr. Garcelon.—At a meeting of the Androscoggin Medical Association resolutions were passed regarding the death of the venerable Dr. Alonzo Garcelon, Lewiston, cherishing his memory, bearing witness to his untiring industry, self-reliance, well matured, positive and outspoken convictions and other attributes of personal leadership, acknowledging the indebtedness of the cities of the county to him for influence both before and after their incorporation, taking pride in the thought that Dr. Garcelon shed luster on the then neglected branch of major surgery for many years.

Proposed Laws.—The Maine Veterinary Medical Association is attempting to have some legal provision made for the inspection of meats consumed in the state. Under the new pure food law, all meat shipped out of the state must be inspected, but no inspection is required for meat for home consumption.——The president of the Massachusetts Society of Optometry appeared before a committee of the Maine legislature March 7, to support a bill to regulate the practice of optometry in the state. The bill was strongly opposed by many physicians headed by Dr. Frederick H. Gerrish of the Maine Medical School and Dr. William L. Cousins, Portland.

Society Meeting.—At a meeting, held in Houlton, January 16, the northern and southern Aroostook medical societies amalgamated, forming the Aroostook County Medical Society. The following officers were elected: President, Dr. Alfred D. Sawyer, Fort Fairfield; vice-president, Dr. Harry L. Putnam, Houlton; secretary, Dr. Frank H. Jackson, Houlton; treasurer, Dr. Wiley E. Sincock, Caribou, and censors, Drs. Harry L. Putnam, Houlton; Frank Kilburn Presque Isle; Herbert F. Kalloch, Fort Fairfield; William W. White, Bridgewater, and Charles E. Thomas, Caribou.——At a meeting of the Androscoggin Medical Association, held in Lewiston, the following officers were elected: President, Dr. Charles E. Norton, Lewiston; vice-presidents, Drs. Herbert H. Purinton, Lewiston, and Edson S. Cummings, Lewiston; secretary, Dr. Daniel A. Barrell, Auburn, and treasurer, Dr. Benjamin M. Sturgis, Auburn.

Medical Staff Appointed.—The directors of the Webber Hospital Association, Biddeford, have selected the following officers for the institution: Senior surgeons—Drs. M. Hubbard Ferguson, Biddeford; Jasper D. Cochrane, Saco; John S. Fogg, Biddeford, and James O. Chenevert, Biddeford; junior surgeons—Drs. Clarence F. Kendall, Biddeford; Clarence E. Thompson, Saco; Joseph M. O'Connor, Biddeford, and P. S. Hill, Saco; senior physicians—Drs. Caleb J. Emory, Biddeford; Walter T. Goodale, Saco; Jovite A. Lapointe, Biddeford, and J. D. Haley, Saco; junior physicians—Drs. Fitz E. Small, Biddeford; L. E. Willard, Saco; Thomas F. Moran, Biddeford, and Willis Hurd, Biddeford; ophthalmolgist and otologist, Dr. Frederick L. Davis, Biddeford; obstetrician, Dr. Eugene D. O'Neil, Biddeford; gynecologist and pediatrist, Drs. Albert C. Maynard, Biddeford, and Laura M. Black, Saco; pathologist, Dr. L. L. Powell, Saco; consulting staff—Drs. Stephen H. Weeks, Seth C. Gordon, Alfred King, William L. Cousins, John F. Thompson, Henry H. Brock, Herbert F. Twitchell, William H. Bradford, Augustus S. Thayer, Addison S. Thayer and Samuel J. Bassford, Portland, and Dr. Charles W. Pillsbury, Saco.

MARYLAND.

Personal.—Dr. B. F. Price, Mt. Carmel, health officer of the district, celebrated his fiftieth wedding anniversary March 10.——Dr. Armfield F. Van Bibber, Belair, has been appointed almshouse physician by the Hartford County Commissioners.

Destructive Fire.—The residence of Dr. Joseph T. Rothrock, former commissioner of forestry, at Mountainside Sanitarium, on the top of South Mountain, was destroyed by fire March 10, with a loss of $10,000.——The residence of Dr. Addison M. Rothrock, who is in charge of the White Pine Sanitarium, the Pennsylvania Institution for Tuberculosis, was saved by the strenuous work of a bucket brigade of consumptive patients and students of the state forestry academy.

Baltimore.

Müller in Baltimore.—Prof. Friedrich Müller, Munich, addressed the Johns Hopkins Hospital Medical Society March 21 on "Newer Studies in Percussion."

Personal.—Dr. H. Barton Jacobs expects to sail for Europe May 8.——Dr. William S. Halsted has been visiting in Rochester, Minn., where he was the guest of Dr. William J. Mayo.——Dr. Thomas H. Buckler will spend several months in Europe.——Dr. Tilghman B. Marden is a candidate for election to the city council.

Railroad Surgeons Meet.—At the annual meeting of the medical officers of the Baltimore & Ohio Railroad Relief Department, held in Baltimore, March 9, the following officers were elected: Superintendent, S. R. Barr; assistant superintendent, H. A. Bateman; chief medical examiner, Dr. Summerfield B. Bond, and chief surgeon, Dr. Isaac R. Trimble.

College Union Advised.—When Dr. William Osler left Baltimore he gave as his parting advice an admonition that the University of Maryland School of Medicine, the Baltimore Medical College and the College of Physicians and Surgeons unite. An attempt was recently made by the two former institutions to follow this advice and committees were appointed. The matter was discussed very thoroughly and the advantages of union pointed out. A certain sentiment in its favor was manifested, but the conflicting interests preponderated, and for the present, at least, the matter has been dropped.

MASSACHUSETTS.

New Hospital.—The new Vincent Memorial Hospital, now being built on South Huntington Avenue, Roxbury, will be a three-story terra-cotta and granite building, to cost about $65,000. It will be "L" shaped, designed for future enlargement, and will have 24 beds, in wards of eight and four beds, and private rooms. Special attention will be given to sun, air and the fine points of modern hospital construction. This is the hospital in which so many of Boston's wealthiest young ladies are so actively interested and is located on Chambers Street in the west end of the city.

Sanatorium Report.—The report of the trustees of the State Sanatorium for Tuberculosis at Rutland shows several changes made during the last year among the medical men connected with the institution. Dr. James F. A. Adams, Pittsfield, has become chairman of the board; Dr. Edward O. Otis, Boston, has succeeded Dr. Vincent Y. Bowditch, Boston, as visiting physician; the superintendent, Dr. Walter J. Marcley, has resigned; the office of pathologist has been abolished and three junior assistants have been appointed, Drs. Elmer H. Copeland and Justus G. Hanson, Northampton; Dr. Charles F. Canedy, Greenfield, and Dr. R. Allen Woodruff, Pittsfield, have been appointed examining physicians in addition to those already serving in the eastern part of the state. The expense during the year was $161,741, an average cost per capita, weekly, of $9.38, or 55 cents more than last year, an increase due to enlarged diet. The average number of patients was 338; average age, 27; applications for admission were received from 2,102 patients, of whom only 897 could be accepted. Of those admitted 36 per cent. were incipient cases, 41 per cent. were moderately advanced, and 21 per cent. advanced. Because of the lessening percentage of incipient cases the percentage of recoveries is less. Such patients are always admitted at once, for the institution was designed for them. In more advanced cases the patients often must await their turn.

MICHIGAN.

Tuberculosis Sanatorium Opened.—The board of control of the Michigan State Sanatorium for Tuberculosis, Howell, at a meeting held in Lansing, announced that the sanatorium would be open about April 1, with an accommodation for about 100 patients.

Infectious Diseases.—The schools of Skanee, Mich., have been

closed owing to the prevalence of scarlet fever and diphtheria in the neighborhood.——A house in River Rouge, in which five cases of smallpox were discovered, has been put under quarantine, and ten boarders who had been going and coming at will, have been vaccinated.——Two new cases of smallpox have been discovered in Kalamazoo.

Personal.—Dr. Nelson R. Gilbert, Bay City, has been reappointed for the sixth time a member of the board of control of the Home of Epileptics and Feeble-Minded, Lapeer. For the last five years Dr. Gilbert has been president of the board.——Dr. Herbert A. Eades, Bay City, received severe abdominal injuries in a street car accident recently.——Dr. Joseph H. Ball, Bay City, is taking Pasteur treatment for hydrophobia at Ann Arbor.——Dr. Ernest W. Haas has been appointed a member of the Detroit Board of Health, vice Dr. Charles G. Jennings, term expired.——Dr. Ignatz Mayer, Detroit, has returned after three months abroad.

MISSISSIPPI.

Hospital Open.—The Kings' Daughters Hospital, Gulfport, was opened March 1, with fitting ceremonies.

Houses Must be Screened.—Dr. George Y. Hicks, city physician of Vicksburg, has announced that all houses subject to the ordinance must be screened by March 15.

Graduation Exercises.—Mississippi Medical College, Meridian, graduated a class of 22, March 9. Dr. W. A. Williamson, Battlefield, was valedictorian, and Dr. W. B. Williams of South Mississippi, salutatorian.

State Society Meeting.—The United States Public Health and Marine-Hospital Service has given permission for the delegates to the Mississippi State Medical Association, which meets at Gulfport, April 10-14, to visit and thoroughly inspect the government quarantine station at Ship Island.

Improvements at State Hospital.—Plans are being made for the additions and improvements to the State Hospital for the Insane, Jackson, including a new hospital building. The trustees have decided to undertake the construction of the building themselves, employing competent superintendents and utilizing the labor of such male patients as are fit for the performance of the work required.

Personal.—Dr. John W. D. Dicks, Natchez, has been elected house surgeon of the Natchez Charity Hospital, vice Dr. E. Floyd Brown, resigned.——Dr. George W. Luster, Learned, has been elected physician at the Oakley convict farm; Dr. S. Pivey at the Sunflower convict farm; Dr. P. Fairley at the Rankin convict farm, and Dr. Henry Christmas, Tchula, at the Belmont convict farm (re-elected).—Dr. George W. Land, Louin, had a narrow escape from death by the accidental drinking of carbolic acid recently.

Elections.—At the annual meeting of the Harrison County Medical Society, Dr. Walter H. Rowan, Wiggins, was elected president; Dr. Robert A. Anderson, Gulfport, vice-president; Dr. Heard H. West, Gulfport, secretary-treasurer; Dr. Edward C. Parker, Gulfport, delegate to the State Medical Association, and Dr. Charles A. Sheeley, Gulfport, alternate.——The Newton County Medical Association, at its annual meeting, changed its name to the Newton-Neshoba Medical Association, and elected the following officers: President, Dr. J. B. Bailey, Conehatta; vice-president for Newton County, Dr. Samuel B. Henton, Decatur; vice-president, for Neshoba County, Dr. Daniel J. Rush, Philadelphia; secretary-treasurer, Dr. W. Jesse Chapman, Newton; censors, Drs. George H. McNeill, Newton, and Sidney A. Majure, Dixon. Philadelphia, Miss., was selected as the next meeting place.——At the annual meeting of the Perry-Greene County Medical Society the following officers were elected: President, Dr. Isham H. C. Cook, Hattiesburg; vice-president, Dr. W. R. Thames, Hattiesburg; secretary-treasurer Dr. S. Lewis Knight, Hattiesburg; censor, Dr. George M. Lackey, McLean; delegate to the state medical association, Dr. Theophilus E. Ross, Hattiesburg, and Dr. J. J. Stevens, alternate.——The Jackson County Medical Society, at its annual meeting, elected the following officers: President, Dr. William A. Cox, Pascagoula; vice-president, Dr. Fritz E. Rehfeld, Moss Point, and delegate to the state medical association, Dr. Henry B. Powell, Ocean Springs.

MISSOURI.

New Home for Maternity Hospital.—The new home of the St. Anthony's Maternity Hospital and Home for Infants at Twenty-third Street and College Avenue, Kansas City, will be ready for occupancy April 1. The building will contain about 60 rooms.

In the Hands of the Law.—In the case of Dr. Edwin J. Hogan, St. Louis, who was convicted nearly a year ago of having performed a criminal operation and ordered to pay a fine of $250 and serve six months in the workhouse, and who was released on bonds, the St. Louis Court of Criminal Correction, which is the court of last resort, confirmed the sentence on March 5.——"Dr." Charles S. DeMyer, also known as Charles H. Myers, St. Louis, charged with practicing medicine and surgery without a license, is reported to have been fined $100 and costs in the Court of Criminal Correction, February 21. A motion for a new trial was filed and he was released on appeal bond.

NEW HAMPSHIRE.

Diphtheria.—Diphtheria is reported to be prevalent at Warren. It has been decided to examine all students and school children daily. Entertainments have been postponed and evening church service has been omitted.

Pure-Food Bill.—The public health committee has reported a bill to the legislature which is in accord with the national food and drugs act, but which goes even farther in its provisions, in the direction of safeguarding the public health.

Society Meeting.—At the second annual meeting of the Hillsborough County Medical Society, held at Nashua, February 7, the following officers were elected: President, Dr. George D. Towne, Manchester; vice-president, Dr. Alonzo S. Wallace, Nashua; secretary-treasurer, Dr. Ella B. Atherton, Nashua; delegates to the state society, Drs. Frank E. Kittredge, Nashua; George C. Wilkins, Manchester, and Charles A. Weaver, New Boston, and executive committee, Drs. Arthur F. Wheat, Manchester; Charles A. Weaver, New Boston; Herbert S. Hutchinson, Milford; Byron D. Pease, Greenville, and Isaiah G. Anthoine, Nashua.

Personal.—Dr. George L. Bastian, recently elected city physician of Manchester, was thrown from his sleigh and had several ribs broken. He was afterward taken ill with diphtheria and removed to the Isolation Hospital.——Dr. George M. Kimball, Concord, has been appointed surgeon general of the state.——Dr. John H. Gleason has resigned from the medical staff of the Elliot Hospital, Manchester.——Dr. Frederick L. Hills, Concord, has been elected superintendent of the Massachusetts State Sanatorium for Tuberculosis, Rutland.——Dr. George V. Fiske, Northwood Ridge, has been awarded a verdict of $600 by the Superior Court, in a personal injury suit against the Boston & Maine Railroad for $3,000.

NEW JERSEY.

Personal.—Dr. Leslie L. Hand, Millville, expects to give up the practice of medicine and enter the Methodist ministry this month.——Dr. Nathaniel S. Hires, Salem, has gone to Italy.

"Voodoo Doctor" Convicted.—In the Camden Criminal Court, March 8, Lafayette Powell, a "Voodoo Doctor," was convicted of obtaining money under false pretenses and sentenced to 18 months imprisonment.

Society Meetings.—At the annual meeting of the Medical Library Association, held in Newark, the following officers were elected: President, Dr. Henry L. Coit, Newark; vice-president, Dr. Richard C. Newton, Montclair; secretary-treasurer, Dr. Frank W. Pinneo, Newark, and directors, Drs. William S. Disbrow, Samuel E. Robertson, Charles J. Kipp and Chauncey B. Griffiths, all of Newark.——At the annual meeting of the Camden City Medical Society Dr. Ahab H. Lippincott was elected president; Dr. Edward A. Y. Schellenger, vice-president; Dr. Joseph W. Martindale, recording secretary; Dr. William H. Pratt, treasurer, and Dr. William I. Kelchner, historian.——The Orange Mountain Medical Society held its annual meeting in the rooms of the William Pierson Medical Library Association, Orange, and elected the following officers: President, Dr. David Van Gieson, Bloomfield; vice-president, Dr. Harrie E. Matthews, Orange; secretary, Dr. Richard D. Freeman, South Orange; treasurer, Dr. James M. Maghee, West Orange; reporter, Dr. William Dodge, Orange, and censors, Drs. David E. English, Millburn; Thomas W. Harvey, Orange, and John H. Bradshaw, Orange.——The following officers were elected at a meeting of the Burlington County Medical Society: President, Dr. Joseph Stokes, Moorestown; vice-president, Dr. J. Edward Blair, Burlington; secretary, Dr. George T. Tracy, Beverly; treasurer, Enoch Hollingshead, Pemberton; reporter, Dr. William P. Melcher, Mount Holly, and member of the legislative committee, Dr. Richard H. Parsons, Mount Holly

NEW YORK.

Lecture on Opsonins.—Dr. Thomas D. Archibald, Toronto, delivered an address before the junior and senior classes of the University of Buffalo Medical Department, February 28, on opsonins. On the next day he gave a demonstration of the technic of opsonic work at the same place.

Typhoid at Katonah.—There are five cases of typhoid fever at Katonah, which is located on the Croton watershed. The Water Department and the Health Department of New York City have made a rigorous inspection of the entire locality and are taking every precaution to prevent the contamination of the water supply of New York City.

Hearing on Milk Bill.—The Reece bill compelling New York City to establish plants for the pasteurizing of milk was attacked before the Assembly Cities Committee on March 12 by Commissioner Darlington and Dr. C. D. Morris, an expert on milk. Dr. Darlington opposed the bill because it is mandatory in its provisions, and Dr. Morris declared that pasteurization destroys the wholesomeness of milk. He said it would cost $7,000,000 a year to operate the plants for New York City, and that this would more than pay for all the cows affected with tuberculosis in the state. Both Drs. Darlington and Morris admitted that pasteurization would be a good thing sometimes.

Society Meeting.—The Blackwell Medical Society, Rochester, Physicians' League, Buffalo; Women's Medical Association, New York; and the Dr. Cordelia A. Greene Society, Castile, joined in a banquet in honor of Dr. Sarah Adamson Dolley at Rochester, March 11. At the election of the Women's Medical Association of New York, which took place at this time, the following officers were elected: Honorary president, Dr. Elizabeth Blackwell, Hastings, England; president, Dr. Sarah R. Adamson Dolley, Rochester; vice-presidents, Drs. Electa B. Whipple, Buffalo; Mary Theresa Greene, Castile, and Mary H. Cotton, New York City; secretary, Dr. Eveline P. Ballentine, Rochester, and treasurer, Dr. M. May Allen, Rochester.

New Bills in Legislature.—Mr. Wainwright has introduced an act to amend the penal code in relation to the sale of certain drugs without prescription, and the prescribing of certain drugs for habitual users of drugs. This act provides that no person shall sell opium, its alkaloids or derivatives; chloral, its derivatives; cocain or its salts; eucain or its salts; acetanilid or any preparation containing the before-mentioned drugs except on the written order or prescription of an authorized physician, dentist or veterinarian.——A bill introduced by Mr. Reese would forbid the importation, manufacture for sale, sale, offer for sale or having in possession with intent to sell within the state, of adulterated, misbranded, poisonous or deleterious foods, drugs, medicines, liquors, beverages and confections, regulates the enforcement and provides a penalty for the violation thereof.

New York City.

Personal.—Dr. Harry M. Archer has been appointed honorary medical officer of the fire department, with the rank of battalion chief.——Dr. William B. Cook is reported to be in a serious condition as the result of being beaten by a highwayman, March 8.

Defective Eyesight.—The school census just completed shows that of the 688,427 children attending school in Greater New York, more than 18 per cent. are foreign born; and that out of 58,948 whose eyes were tested, 17,928 were found to be suffering from visual defects.

Lectures on Health Topics.—The Eastern Branch of the Y. M. C. A. of Brooklyn is giving a course of lectures on subjects pertaining to health. The first was on "Who Brings Up Your Child?" by Dr. William H. Allen. The next will be by Dr. Ira S. Wile on "Vaccination." Another will be by Dr. John S. Huber on "Prevention of Consumption," and the last will be by Dr. Jerome Walker on "Foods."

Law and Medicine Dine.—The Society of Medical Jurisprudence commemorated its twenty-fifth anniversary by a dinner at the Hotel Savoy. The first speaker was Dr. Joseph D. Bryant, who reviewed the organization of the association and took occasion to criticise those who are giving endowments favoring the clerical profession, to the detriment of the medical fraternity. Dr. Harvey W. Wiley of the United States Department of Agriculture spoke on "The Law and the Fact," and Rev. James E. Freeman gave "A Pulpit View of Physicians and Lawyers."

Lodging Houses Must Be Improved.—The sanitary code governing lodging houses has been revised by the health department with a view to securing better ventilation, improved sanitation, greater cleanliness and other improvements. The new rules call for an increase of one-half the cubic air space at present provided per lodger and insist on adequate ventilation at night. They also require that from 10 o'clock in the morning until 2 in the afternoon the windows of sleeping rooms and dormitories shall be open sufficiently to admit plenty of fresh air. A larger supply of hot and cold water, available at all hours for baths, is also to be provided. Clean sheets and pillow cases must be provided daily for all beds. It is estimated that between six and seven million night's lodgings are sold in Manhattan and Brooklyn annually. One half the male applicants for aid and the larger number of homeless patients in the city hospitals come directly from the lodging houses and it is claimed that a long stay in these places has a debilitating effect physically.

Hospital News.—The Anna Ottendorfer Dispensary was dedicated by Governor Hughes, March 16. This dispensary is connected with the German Hospital, and has been erected by the children of Mrs. Anna Ottendorfer as a memorial.——The annual report of the Manhattan Eye, Ear and Throat Hospital for the year ended Sept. 30, 1906, shows that during that year 18,246 cases of eye disease were treated and 3,718 operations on the eye performed; 6,283 cases of ear disease were treated and 1,899 operations performed; 6,465 cases of disease of the nose, throat and allied organs were treated and 1,365 operations performed.——The fortieth annual report of St. John's Guild for the year ended Sept. 30, 1906, shows that during the existence of the guild, 1,253,597 mothers and children have been cared for for periods ranging from one day to two months. During 1906, 38,392 persons were carried on the Floating Hospital. The cost of maintaining the Floating and Seaside Hospital was $77,235. There was a balance left over at the end of the season of $8,835 available for the summer of 1907. The city contributed $20,000 to the work.——The Board of Estimate has adopted tentatively, as a site for the proposed seaside sanatorium, a tract of land at Rockaway Point which will cost about $1,000,000, and comprises about 350 acres.

NORTH CAROLINA.

Sanatorium Incorporated.—The Asheville-Biltmore Sanatorium Company has been chartered, with Dr. Paul Paquin, Asheville, as chief incorporator, with a capital stock of $50,000.

New Infirmary.—The trustees of the state university, Chapel Hill, have let the contract for the erection of a new infirmary for the care of sick students at the university. The building is to cost $20,000 and will be ready for occupancy December 1.

Class Withdraws from College.—Twenty-seven students, constituting the entire sophomore class of Shaw University (colored), Raleigh, have withdrawn from the university, their action being based on their resentment of the suspension of a fellow-student.

Medical Officers Commissioned.—The following medical officers of the State Guard have recently been commissioned: Capt. Andrew H. Harriss, Wilmington, assistant surgeon; Lieut. Albert De K. Parrott, Kinston, assistant surgeon; Lieut. J. Lewis Hanes, Winston-Salem, assistant surgeon, and Lieutenant Commander R. Duval Jones, New Bern, surgeon to the naval brigade.

Milk Tested.—The city of Raleigh is having regular tests made each week by the city bacteriologist, Dr. F. L. Stevens, of samples of milk from each of the eight dairies which supply the city. The most recent tests show that five of the eight were fully up to the standard set by the commission, that two showed an excess of bacteria above the standard of the board, and that one showed a deficiency of fat.

State Hospital for Tuberculosis.—A bill is pending in the legislature which provides for the establishment of a state hospital for the treatment of tuberculosis, to be under the control of nine directors, elected by the legislature and appropriating $15,000 for the establishment, with an annual allowance of $5,000 for running expenses. Drs. M. Eugene Street, Glendon, and James E. Brooks, Greensboro, are the medical men named as directors.

Personal.—Among the medical members of the county boards of education throughout the state are the following: Bertie, Dr. Henry V. Dunstan, Windsor; Carteret, Dr. C. N. Mason, Harlowe; Granville, Drs. Benjamin K. Hayes, Oxford, and Elijah B. Meadows, Oxford; Haywood, Dr. J. E. Wilson, Canton; Lenoir, Dr. Richard H. Lewis, Raleigh; Scotland, Dr. Walter L. Pate, Gibson; Stanly, Dr. Daniel P. Whitley, Millingport; Stokes, Dr. Elias Ful , Walnut Cove; Swain, Dr. James H. Teague, Whittier; Union, Dr. John E. Asheraft, Monroe; Vance, Dr. Robert J. Gill, Henderson, and Yadkin, Dr. M. Luther Matthews, East Bend.——Dr. Charles J. Sawyer, Salisbury, has removed to his former home at Windsor.——Dr. C. A. Woodward, Wilson, has removed to Durham.——Dr. Frank Roberts, Marshall, has been appointed postmaster at that place.——Governor Glenn has appointed Dr. James W.

McNeill, Hope Mills, who was a member of the last legislature, the medical member of the new State Hospital Commission. ——The nomination of Drs. L. Julian Picot, Littleton, and William H. Whitehead, Rockymount, for directors of the State Hospital for the Insane, have been confirmed by the Senate.

NORTH DAKOTA.

Epidemic Diseases.—The schools of Bowbells have been closed on account of the prevalence of smallpox.——Hemorrhagic measles is reported to be epidemic in Ellendale.——More than 100 cases of measles are reported from Fargo.——Scarlet fever is reported to be prevalent in Grand Forks. Several cases have occurred at Grand Forks College and quarantine has been established over the institution.

Personal.—Dr. Patrick M. Walker, St. Thomas, has removed to Everett, Wash.——Dr. Thor O. Moeller, Devil's Lake, has located in Minot.——Dr. Thomas G. Devitt, Grand Forks, has returned from the Pacific Coast, where he spent several weeks. ——Dr. Hamilton P. Boardmann and family, Oakes, have removed to Southern California.——Drs. Gudmund J. Gislason and Thomas Mulligan, both of Grand Forks, are spending a year in Europe.

Society Meetings.—At the annual meeting of the Traill County Medical Society, held in Mayville, Dr. George W. McIntyre, Mayville, was elected president; Dr. Edward C. Haagensen, Hillsboro, vice-president; Dr. Arnt G. Anderson, Hillsboro, secretary, and Dr. Henrik S. Schanche, Portland, treasurer.——At the annual meeting of the Cass County Medical Association, held in Fargo, Dr. Henry A. Beaudoux was elected president and Dr. Ralph E. Weible, vice-president, both of Fargo.——At the annual meeting of the Devil's Lake Medical Association the following officers were elected: President, Dr. William F. Sihler, Devil's Lake; vice-president, Dr. George F. Drew, Crary; secretary-treasurer, Dr. Gustav J. McIntosh, Webster; delegate to the state society, Dr. Arthur T. Horsman; censors, Drs. Thor O. Moeller, Devil's Lake; William C. Fawcett, Starkweather, and Joseph W. Warren, Leeds, and committee on public health, Drs. Arthur T. Horsman, Devil's Lake; Gustav J. McIntosh, Webster, and Roy V. Rogers, Penn.

OKLAHOMA.

Epidemic Diseases.—An epidemic of measles is reported from Duncan.——Four cases of cerebrospinal meningitis, with two deaths, have been reported from Oklahoma City.——Several cases of smallpox are reported from Grand County.

Medical Colleges Incorporated.—The Oklahoma State Medical College has been incorporated at Oklahoma City by Dr. William J. Darnell, Mountain View; Dr. Willis F. Westmoreland, Atlanta, Ga.; Dr. Henricus H. Battey, Rome, Ga., and J. P. Eckers and Dr. Joseph R. Phelan of Oklahoma City.—— The Epworth College of Medicine has been chartered at Oklahoma City with a capital stock of $20,000 by Drs. L. Haynes Buxton, Ulbus L. Russell, Edmund S. Ferguson and others.

Society Meetings.—At the annual meeting of the Kiowa County Medical Association, held at Harrison, the following officers were elected: President, Dr. Herbert E. Colby, Gotebo; vice-presidents, Drs. Alexander Barkley, Hobart, and Marshall E. Chambers, Gotebo; secretary, Dr. James M. Bonham, Hobart, and treasurer, Dr. William L. York, Hobart.——The Comanche County Medical Society, at its annual meeting, held in Lawton, elected the following officers: President, Dr. Alexander X. Campbell, Lawton; vice-president, Dr. M. A. Jones, Walter; secretary-treasurer, Dr. James L. Lewis, Lawton; censor, Dr. William M. Turner, Lawton, and delegate to the state association, Dr. David A. Myers, Lawton.——At the annual meeting of the Central Oklahoma Medical Association, held at Enid, the following officers were elected: President, Dr. H. Coulter Todd, Oklahoma City; vice-president, Dr. Newton Rector, Hennessey; secretary-treasurer, Dr. George A. Boyle, Enid, and censors, Drs. Thomas A. Rhodes, Goltry; Franklin P. Hulin, Pond Creek, and Edmund S. Ferguson, Oklahoma City.——At the annual meeting of the Pottawatomie County Medical Society, held at Shawnee, Dr. J. Asa Walker was elected president; Dr. Joseph M. Trigg, vice-president; Dr. Walter C. Bradford, secretary-treasurer (re-elected), all of Shawnee, and Dr. Charles H. Blickenderfer, Tecumseh, censor.

OREGON.

Personal.—Dr. E. Barton Pickel, Medford, has been elected president and Dr. Edward A. Pierce, Portland, vice-president of the State Board of Health.——Dr. Fred V. Mohn has been elected city physician of Astoria.

Hospital Notes.—Articles of incorporation have been filed for the building of an institution at La Grande, to be known as the Grande Ronde Hospital, with a capital stock of $16,000. The building will cover a ground space of 80 by 32 feet and will have accomodation for about 30 patients.——A bill introduced by Senator Beach provides for a state commission on tuberculosis and for the establishment and maintenance of two state sanatoria for consumptives, one in Eastern Oregon and one in Western Oregon, with an appropriation of $25,000 to establish and maintain the institutions for two years.

Society Meeting.—At the annual meeting of the Clatsop County Medical Society the following officers were elected: President, Dr. Orrin B. Estes, Astoria; vice-president, Dr. Arthur A. Finch, Astoria; treasurer, Dr. Robert J. Pilkington, Astoria; secretary, Dr. John M. Holt, U. S. P. H. and M.-H. Service, and delegate to the state association, Dr. Henry L. Henderson, Astoria.——The Portland Academy of Medicine has been organized with the following officers: President, Dr. Simeon E. Josephi; vice-presidents, Drs. Andrew J. Giesy and Otto S. Bingswanger; secretary, Dr. Albert E. Mackey, and treasurer, Dr. James F. Bell.

PENNSYLVANIA.

Election.—At the annual meeting of the Association of the Free Hospital for Poor Consumptives, White Haven Sanatorium, held March 11, the following officers were elected: President, Dr. Lawrence F. Flick; vice-presidents, Louis Gerstley and M. S. Kemmerer; secretary, Charles W. Welsh; treasurer, Edward A. Miller, and managers, James M. Wilcox, Talcott Williams, Frank Graham Thomson, Dr. Charles J. Hatfield, John K. Mitchell, Dr. D. J. McCarthy, Dr. Joseph Walsh, and Dr. William B. Stanton. During the first six years of the association, $30,000 was spent for the maintenance of tubercular subjects in institutions over which the association had no control. In 1901 the White Haven Sanatorium was started with a capital of $2,500. A few beds were placed in a barn and, from this humble beginning, the establishment has grown to an institution capable of treating and quartering 196 patients. The entire cost of the plant so far has been $174,000. About $100,000 more is needed to complete the original plans. When finished the buildings and equipment will have cost approximately $900 a bed, and the institution will be one of the most economically built and equipped of its kind in the world. In Europe similar establishments rarely cost less than $1,500 a bed. The average cost of caring for a patient is $7.00 a week, this low rate being due in part, to the practice of paying the invalid for a certain amount of work for the institution as exercise.

Society Elections.—Mifflin County Medical Society has elected the following officers: President, Dr. Henry W. Sweigart, Lewistown; vice-presidents, Drs. Robert F. Barnett, Lewistown, and H. S. Rothrock; secretary, Dr. James A. C. Clarkson, Lewistown; treasurer, Dr. Alexander S. Harshberger, Lewistown, and reporter, Dr. Walter H. Parcels, Lewistown. ——Montgomery County Medical Society has elected the following officers: President, Dr. Oliver C. Heffner, Pottstown; vice-presidents, Drs. William G. Miller and George W. Stein, Norristown; secretary, Dr. Harry H. Whitcomb, Norristown; corresponding secretary and reporter, Dr. Edgar S. Buyers, Norristown, and treasurer, Dr. Frank C. Parker, Norristown. ——Schuylkill County Medical Society has elected the following officers: President, Dr. George H. Moore, Schuylkill Haven; vice-president, Dr. Arthur B. Fleming, Tamaqua; secretary and reporter, Dr. George O. O. Santee; treasurer, Dr. Jacob Taggart, and censor, Dr. J. Spencer Callen, Shenandoah.—— Lebanon County Medical Society has elected the following officers: President, Dr. William M. Guilford; vice-presidents, Drs. Alfred S. Weiss and Seth A. Light; treasurer, Dr. Warren F. Klein; secretary, Dr. Charles M. Strickler, and medical and surgical reporter, Dr. John J. Light, all of Lebanon.—— Huntingdon County Medical Society has elected the following officers: President, Dr. Charles A. R. McClain, Mount Union; vice-president, Dr. Alvin R. McCarthy, Mount Union; secretary and reporter, Dr. Howard C. Frontz, Huntingdon; treasurer, Dr. George G. Harman, Huntingdon, and censors, Drs. Rudolph Myers, Huntingdon, Charles Campbell, Petersburg, and Charles B. Bush, Orbisonia.——Dauphin County Medical Society has elected the following officers: President, Dr. Charles E. L. Keene; vice-presidents, Drs. J. Warren Roop and John C. DeVenney; secretary, Dr. Clarence R. Phillips; treasurer, Dr. Frank D. Kilgore; reporter, Dr. Charles M. Rickert; censors, Drs. J. Wesley Ellenberger and Paul A. Hartman; delegate to executive council, Dr. David S. Funk, all of Harrisburg, and alternates, Drs. William H. Seibert, Steelton, and Charles S. Rebuck, Harrisburg.

Philadelphia.

Donation Day.—The first annual donation day of the Roosevelt Hospital was observed March 20. The hospital had especial need for twenty new beds. At present there are only twenty-four beds in the institution. The hospital opened Nov. 9, 1905, and since its opening 1,000 patients have received treatment.

Keen Leaves College.—Dr. William W. Keen finished his service at the Jefferson Medical College March 11 and left the institution with which he has been connected so long. He tendered his resignation as professor of principles of surgery at the last meeting of the directors. There was no formality about his going. He will sail March 27 for Europe, where he will spend about two years.

Presentation to Dr. Coplin.—The tenth anniversary of his professorship in Jefferson Medical College was made the occasion, March 15, by the Coplin Pathological Society at its annual dinner of the presentation to Dr. W. M. Late Coplin, director of the Department of Public Health and Charities, of a silver service as a mark of the appreciation of pathologists for his services to this branch of the profession. Dr. Randa C. Rosenberger acted as toastmaster.

Charity Ball.—A meeting of the executive committee of the twenty-seventh annual charity ball, held January 30, took place March 14. The net proceeds for distribution among the beneficiaries was found to be $9,600. Each of the following institutions received $2,400: Children's Surgical Ward of the Hospital of the University of Pennsylvania, Maternity Department of the Jefferson Medical College Hospital, the Children's Aid Society, and the Polyclinic Hospital.

Health Certificate Before Marriage.—At its regular meeting March 14, the Philadelphia County Medical Society adopted a resolution urging the legislature to pass a bill requiring certificates to the effect that both parties to a proposed marriage are, in the opinion of a qualified physician, free from disease transmissible to progeny, before a license shall be issued to such persons to wed. The society affirms the principle involved and endorses the efforts of the community to secure the adoption of the measure.

Hospital Report.—The report of the Mount Sinai Hospital for February shows that 47 patients were admitted which, with the 28 patients under treatment at the beginning of the month, made a total of 75 treated. Of this number, 36 were discharged cured, 5 improved, 5 unimproved, and 3 died, leaving 26 patients under treatment at the end of the month. In the out-patient department 2,613 visits were paid. Of the total visits 916 were new patients. In the emergency ward there were 292 patients treated, 46 of which were patrol cases. There are at present 16 typhoid fever patients in the hospital. At an executive committee meeting held March 2, Dr. Alexander Marcy, Riverton, N. J., was elected governor to fill the unexpired term of one year of Dr. L. Webster Fox.

Objections to Hospital.—A petition signed by nearly all the property owners in the vicinity of the Rush Hospital for Consumptives at Thirty-third Street and Lancaster Avenue, protesting against further appropriations for the extension of the building, was forwarded March 11 to both branches of the Legislature at Harrisburg. The reasons set forth in the protest are these: 1. The soft coal smoke from the yards of the Pennsylvania Railroad, which constantly permeates the atmosphere surrounding the hospital, is prejudicial to lung diseases. 2. The operation of the hospital and the occurrences in and about it are a nuisance to the residential neighborhood in which it is located. 3. Any addition to the hospital whereby its capacity will be increased will further depreciate the value of property in the neighborhood, which has already been seriously prejudiced by it. Ineffectual protest was made at the time this hospital bought the property it occupies. This building still stands in an unfinished condition and supporters of the institution have asked for more funds to complete it. A request for the appropriation of $140,000 to complete the hospital will come before the Legislature now in session.

GENERAL.

Yellow Fever.—Yellow fever is reported at Paraje Neuvo, near Cordoba, Mexico, and precautionary steps have been taken.

Hospital Board Meets.—The first meeting of the medical board of the American Hospital, Mexico City, Mexico, which is composed of Drs. Gustavo Pagenstecher, Ernesto P. Fichtner, Alberto R. Goodman, P. W. Monroe and H. Y. Spence, was held March 6. Dr. Pagenstecher was elected chairman of the board.

Dr. Osler's Mother Dies a Centenarian.—Dr. William Osler's mother died in Toronto March 18 at the advanced age of 100 years and 3 months. Few mothers had a family of such distinguished sons. Besides Professor Osler, now regius professor of medicine, Oxford, England, there is E. B. Osler, a wealthy financier and a member of Parliament for Toronto; another is Justice of the Ontario Supreme Court, and the fourth was one of the most famous criminal lawyers of Canada.

Inebriety Association at Atlantic City.—The American Association for the Study of Alcohol and Narcotic Drugs will hold its annual meeting in the parlors of the Hotel Marlborough-Blenheim at Atlantic City, N. J., June 4 to 6 from 9 to 10:30 a. m. An interesting program is being prepared, with reports on different phases of the progress of the study of this subject at home and abroad. All physicians who would like to know something of this new field of spirit and drug psychosis are invited to be present. For further particulars and programs address the secretary, Dr. T. D. Crothers, Hartford, Conn. One feature of the session that is being planned is a temperance lunch, at which prominent men will speak.

Health of the Philippines.—Dr. Heiser, chief quarantine officer reports the state of the public health is more satisfactory than at any time since the American occupation. The sanitary work of a permanent character, which has steadily been carried on during the past few years, is gradually beginning to be felt. During 1906 the population of the provinces of Cebu, Cavite and Batangas have been systematically vaccinated with the result that, instead of a death list of over 2,000 in Cebu from smallpox and of from 600 to 700 in Cavite and an equal number in Batangas, the number has been reduced to a scattered few, none having come to the attention of the bureau of health during the past six months. It is believed that the artesian wells, which are being systematically installed in a number of provinces, will be another important step in reducing the mortality of the islands. Bacteriologic examinations made of 600 persons selected at random showed uncinariasis present in more than 50 per cent. of those examined.

CANADA.

Vital Statistics.—In February there were 351 cases of infectious diseases reported in Montreal. Of this number 82 were tuberculosis. The death rate in Montreal for 1906 was just a fraction under 22 per 1,000 of population, an increase of 2 per 1,000 over 1905.

Work for Consumptives.—The committee conducting a campaign in British Columbia in aid of a provincial sanatorium for consumptives, has recently sent out 6,000 circulars and collectors are making a house-to-house canvass throughout the province soliciting subscriptions. The St. John, N. B., Medical Society has appointed a special committee to urge on the government of New Brunswick the advisability of building a provincial sanatorium for the treatment of consumptives in that province.——The annual meeting of the Canadian Association for the Prevention of Tuberculosis was held in Ottawa March 13 and 14. The following officers were elected. Honorary president, Earl Grey; honorary vice-presidents, the Lieutenant Governors of the different provinces of Canada; president, Hon. Senator Edwards; secretary, Rev. W. Moore, and treasurer, Mr. J. M. Courtenay. A resolution was adopted asking for a more stringent inspection of immigrants on the part of the federal officers.

Personal.—Dr. William Black, Winnipeg, is making his annual visit to Rochester and New York.——Dr. Charles Morrison, Montreal, has sailed from Boston for the Mediterranean.——Dr. Campbell Howard, Montreal, is returning from abroad.——Dr. Gordon T. Alley, Charlottetown, P. E. I., who has been ill at the Royal Victoria Hospital, Montreal, has gone to Palm Beach, Fla.——Drs. John Stewart and C. Dickie Murray, Halifax, are in Bermuda for their health. Dr. Harry J. Watson, U. S. Medical Immigration officer at Winnipeg, has recovered from his recent severe illness and resumed practice.——Dr. John Hardie, Morden, Man., has gone to study at Edinburgh.——Dr. Francis J. Ball, Singhampton, Ont., has accepted a surgeoncy on a steamship line to Egypt.——Dr. William Stevenson, Virden, Man., is doing graduate work in Chicago.——Dr. William R. Nichols, Winnipeg, has been appointed examiner in physiology for the University of Manitoba.——Dr. David Low, Regina, Sask., has gone to the West Indies for a visit.

Osteopaths in Quebec.—The whole of the afternoon of March 6 was devoted to the consideration of the new medical bill before the Quebec provincial legislature. The bill was in charge of Dr. A. Albert Jobin and was proposed in the interests of the College of Physicians and Surgeons of Quebec. The bulk of the debate was on the clause relating to the advance to five instead of four years' study. All the medical men, members of the legislature took part in the debate, and all with one exception supported the proposal, but all in vain, for the clause was struck out and the four-year course in medicine will still obtain in Quebec. The osteopaths then sent a delegation to wait on the premier, protesting against certain clauses of the bill; and in this connection one of their leaders—there are five osteopaths doing business in Montreal—gave out some information which Canadians in the medical profession can scarcely credit, namely, that since 1901 osteopathy had been recognized and legalized in 34 states of the United States, and that the Supreme Court of the United States had ruled in their favor in other states.

Hospital News.—The St. John (N. B.) hospital commissioners are sending to each practitioner of New Brunswick a copy of the scale of fees of the hospital, as many medical men have been in the past in the habit of sending in patients without telling them that there is such a things as a scale of fees.——Dr. Rowley has been appointed medical superintendent of the St. John (N. B.) Hospital, and will assume his duties some time during the present month.——Dr. Thomas Walker, St. John, N. B., has been inspecting various hospitals in the United States to obtain information for use in the new operating room in connection with the St. John General Hospital.——It is proposed to erect a 60-bed hospital in Regina, Sask., under the care of the Grey Nuns, at a cost of $100,000.——A new general hospital has been opened at Wingham, Ont.——A new wing containing 30 beds has been completed for the General Hospital at Walkerton, Ont.——Dr. John N. E. Brown, medical superintendent of the Toronto General Hospital, Prof. A. B. Macallum, F.R.S., Toronto University, Dr. R. W. Bruce Smith, Ontario Hospital Inspector, and Mr. M. J. Haney, chairman of the building committee in charge of the erection of the new hospital, have been in New York, Philadelphia and Baltimore and other cities in the United States gathering information and making observations of hospitals.——Mr. William Southam, Hamilton, Ont., has donated to the Hamilton City Hospital, $15,000 to build a wing for incurable consumptives.——The Alberta legislature has set apart $34,500 for hospital purposes in that province for the current year.——The Lady Minto Hospital at New Liskeard, Ont., will soon be ready for occupation. It is being built at a cost of $20,000, will have thirty-five beds, and will be in charge of three nurses of the Victorian Order.——The annual meeting of the Winnipeg General Hospital was held in Winnipeg last week. During the past year there were treated in the institution 4,741 patients and 5,078 consultations were held in the out-door departments. The number of deaths was 317. The work of this hospital has grown enormously within the past five years, as in 1901 the number of patients treated was only 2,773. The total ordinary receipts amounted to $144,823.94 and the expenditures to $131,178.78.

FOREIGN.

Hospital to be Erected on Mount of Olives, Jerusalem.—An exchange states that a new hospital is to be erected on the Mount of Olives by evangelical residents of Jerusalem. The corner-stone will be laid on Easter day.

Treatment of Incipient Mental Disorders in Scotland.—The managers of the Western Infirmary, Glasgow, have decided to undertake the treatment of incipient mental disorders in the dispensary attached to the infirmary. The advantages of such clinics are obvious, says the *Lancet*, and students should receive considerable benefit from them.

Proposed Camillo Golgi Scholarship at Pavia.—A subscription has been opened in Italy to collect funds to establish a perpetual medical scholarship at the university of Pavia in honor of Golgi. Professor M. Mariani of Pavia has been appointed treasurer of the fund. The students of the university opened the subscription with the sum of $200.

Death of Bacteriologist Studying the Bubonic Plague.—The fortress of Cronstadt, near St. Petersburg, has a laboratory specially equipped for research on the bubonic plague, and a number of scientists have been busily at work there for some time. One of them, Dr. Schreiber, became accidentally inoculated with the plague and his death has just been reported.

Personal.—Dr. Donald MacAllister has been appointed principal of Glasgow University to succeed the late Principal Story. For more than three centuries a divine has been at the head.——Dr. Robert Kennedy has been appointed lecturer in applied anatomy at Glasgow University.——Agnes Cameron, M.B., Ch.B., has been appointed extra assistant gynecologist to the Royal Infirmary, Glasgow.

Suppression of Opium Smoking in Australia.—The *Australasian Medical Gazette* states that the Opium Suppression Bill has almost completely annihilated the vice in Melbourne, while reports show the same desirable end has been attained in other parts of the country. The various police officials who have sent in reports state that the multitude of obstacles to opium smoking raised by the measure has resulted in the practice having diminished until the evidences of its existence are scarcely apparent.

Streets Named After Physicians.—The *British Medical Journal* has recently been publishing a list of streets named after physicians in various towns of England, with brief biographical sketches of the physicians in question when they belonged to a preceding generation. The list is proving longer than was at first anticipated. One of the ways in which the Spanish propose to honor Cajal since his receipt of one of the Nobel prizes is to change the name of one of the streets of Madrid to name it after him. It might be interesting to know what streets in American towns are named after physicians.

Centennial Celebration of the Surgical Clinics at Vienna.—The hundredth anniversary of the founding of the "Operateur-Institut" at Vienna was celebrated March 15 with great ceremony. Hochenegg and von Eiselsberg are the present chiefs of the first and second surgical clinics, and special demonstrations and inspection of the premises were the order of the day. In the evening the annual meeting of the local medical society resolved itself into an advance celebration in honor of the eightieth birthday of Lord Lister, extolled as the "founder of modern surgery." A. Fraenkel delivered the main address of the evening, and the festivities closed with a social gathering in the Riedhof restaurant. Lister was born April 5, 1827.

First Congress of German Urological Society.—This newly organized association of German-speaking urologists will hold its first annual meeting at Vienna, Oct. 2-5, 1907. Küster and von Eiselsberg will lead the discussion on the diagnosis and treatment of tumors of the kidney, and Kümmel and Holzknecht, the Vienna Roentgen expert, on the diagnosis and treatment of stone in the kidney. The third topic announced for discussion, "Albuminuria," will be presented by von Noorden and Posner. An exhibition of instruments, etc., will be held in connection with the congress. Address all communications to the general secretary, Dr. Kapsammer, Maria Theresienstrasse 3, Vienna, IX, Austria. The subscription fee of 10 marks ($2.50) should be forwarded to the treasurer, Dr. F. Löwenhardt, Karlstrasse 1, Vienna. Posner of Berlin and von Frisch of Vienna will preside.

Repeal of Recent French Law Creating New Certificate for Advanced Medical Education.—THE JOURNAL commented editorially on page 587 of the last volume on the decree issued last July in France creating a new certificate to be awarded to physicians who could pass certain examinations. On receipt of this certificate they would be eligible for any university or other medical position at any time thereafter without the necessity for further examinations. The profession throughout the country did not approve of the measure, as it was liable to create invidious distinctions between physicians by establishing two grades of physicians—those who had the certificate and those who had not, suggesting the superiority of the former. The authorities have now repealed the law concerning the certificate, although the requirements for examinations are retained, and those physicians who pass the examinations with honor will be given the preference in appointments to medical positions without re-examination. The *Semaine Médicale* for March 6 gives the full text of the official documents relating to these changes in the mode of appointments to medical positions. They free physicians from the dread of impending re-examination and allow them to pursue their researches and work with a quiet mind.

The Famine in China.—Acting Assistant Surgeon Ransom of the Public Health and Marine-Hospital Service reports that smallpox has broken out in the camps along the Yangtze River, China, in which many thousands of starving refugees from the famine area are now concentrated. There are more than a million and a half of starving people in the camps within a few hours' travel of Shanghai, and these represent only a

fraction of the mass affected by the famine. These people are herded together without regard to sanitation. They are living in temporary huts of matting, 4 feet in height by about 6 feet wide and 8 feet deep, one end of which is open and the other closed with sod. Such a structure contains 8 or 10 individuals clothed in rags, filthy beyond description, and the huts are packed together in the closest possible manner. The food of these sufferers consists of a small cup of rice each per day or the equivalent of about 2 cents American money with which to buy food, this relief being supplied by the Chinese officials. As there is no food to buy, the financial relief offered is of little avail. It is reported that the country over which these people have traveled to the concentration camps resembles that which has been swept over by a swarm of locusts. There is not a living thing to be seen, either vegetable or animal, and even the bark of trees and roots and refuse of all kinds are being consumed for food. The extreme suffering in the famine area continues unabated, notwithstanding the fact that there have been sent from Shanghai, through voluntary contributions of its citizens, tons of provisions for the stricken people. These provisions are accumulating at the various ports along the Yangtze, for various reasons, chief among which are bad roads or no roads, the silting up of the waterways and lack of transportation into the country. Severely cold weather adds to the suffering. One of the results of this condition is that many beggars are finding their way into Shanghai, bringing with them the diseases which prevail in the concentration camps whence they come.

Congress for Medical Economics in Belgium.—The third annual conference of Belgian physicians to discuss organization, contract practice, insurance fees, medical legislation and the like, will convene at Antwerp in July. The subjects to be especially discussed this year are the needed reforms in the present system of insurance against industrial accidents; the free choice of a physician by the injured workman (known abroad as "the American plan"), and the advisability of organizing special postgraduate courses in medical hygiene and medical jurisprudence, with diplomas. The two preceding congresses were very successful. They are all organized by the officers of the general medical association, the *Fédération Médicale Belge*, which has its central offices in the *Maison des Médecins* at Brussels, the special building erected a year or so ago for a central gathering place for physicians and medical societies.

Repression of Ankylostomiasis in Belgium.—According to reports from Belgium, much success has attended the recent researches made there in regard to ankylostomiasis, "miner's anemia," and it is stated that by putting into execution the knowledge thus gained, the disease has been virtually controlled. The fact has been made perfectly clear, as already mentioned in THE JOURNAL some time ago, that the disease is caused either by the parasitic worm entering by the mouth or by penetration through the skin, and that personal cleanliness and careful attention to sanitation are the most effectual means of combating it. Dr. Herman, director of the Institute of Bacteriology of the province of Hainaut, has verified in a practical manner the conclusions reached by Looss in Egypt, namely, that the larval germs of the disease, coming in contact with the flesh, will penetrate the skin. The worms either penetrating through the skin or entering the mouth, of course reach the intestines, and after a time reduce their victims to a condition of acute anemia. A feature of the disease is that the miner, although himself infected, is unable to infect other members of his family. Without the necessary warm atmospheric conditions the germs of the disease can not be transmitted. This point plainly demonstrates the fact that good sanitation is essential if the disease is to be stamped out. The steps taken by the Belgian government appear to have been effectual in bringing about this result. It is satisfactory to be well assured that by observing strictly the laws of personal cleanliness and sanitation, as has been done in Belgium, the disease can be eradicated.

LONDON LETTER.

(From Our Regular Correspondent.)

LONDON, March 2, 1907.

The Epidemic of Cerebrospinal Meningitis.

The epidemic of cerebrospinal meningitis in Ireland and Scotland is increasing in an alarming manner, and several cases have occurred in London and other parts of England. Up to February 27 there have been 123 cases, with 72 deaths, in Belfast; 8 other cases have been reported from various other towns in the north of Ireland. In Dublin 11 cases and 8 deaths have occurred. The disease has been made notifiable for six months. In London 3 cases and 2 deaths have occurred. Cases are also reported from Chelmsford, Hull, Handsworth and Eccles. In Glasgow the death roll amounts to 125 and there are now 101 cases under treatment. The total number of cases in the United Kingdom now amounts to 483 and the deaths to 364. In London ample provision has been made for an epidemic.

In Edinburgh the medical officer of public health states that during January there were 25 cases and 21 deaths. However, from postmortem bacteriologic investigations it was decided that a third of the deaths attributed to meningitis in epidemic form were due to other diseases, principally to tuberculous and acute meningitis. Mistaken diagnoses undoubtedly not infrequently happen when epidemic meningitis is prevalent, but it is certain that meningitis in its different forms has been unusually common in Great Britain during the past winter.

Sanitary Education in the Army.

The war office has at last been stirred up to make proper provision for the teaching of hygiene in the army. A course of lectures on sanitation will be given to officers at least once annually by the commanding sanitary officer or by a selected member of the Royal Army Medical Corps. A manual of sanitation has been prepared and will be issued to all concerned. Instructions and examinations will be based primarily on this manual. After March 1, 1908, lieutenants will be required to pass an examination in sanitation before promotion to the rank of captain. Officers who obtain 50 per cent. of marks will be recorded as passed. Those who gain 75 per cent. will receive a special certificate in sanitation. Officers of companies, squadrons, etc., will give instruction to their non-commissioned officers and men in sanitation. Instruction will be given to fit them for the performance of sanitary police duties, the sterilization of water on active service, etc. In other respects the War Office has also awakened to the necessity of sanitary preparations. On mobilization being ordered a sanitary inspection committee is to be formed for service in the field. Its duties will be to see that sanitary appliances and materials of all kinds are available and that an adequate reserve is maintained; to assist general officers and the medical service in maintaining the health of the army; to initiate schemes of general sanitation and to serve as a board of reference for the solution of sanitary questions; to visit and inspect stations occupied by troops, to advise local authorities regarding necessary sanitary measures, and to promote in every way the maintenance of sanitary conditions.

Rearing of Children.

An interesting lecture on rearing of children was delivered at the Institute of Hygiene, London, February 20, by Dr. George Carpenter, a well-known British authority on pediatrics. He maintained that the future prosperity and position of Great Britain depend on this subject receiving the serious attention due it. The best point made by Dr. Carpenter was the severe indictment brought against the lethargy and negligence of the authorities in allowing the British milk supply to continue in its present unsatisfactory condition. He said that great indignation was expressed when "The Jungle" revealed the horrors of American packing houses, but it seems, said the lecturer, difficult to arouse the public about an equally scandalous state of affairs in regard to our own dairy operations. Untold infant lives, he asserted, are sacrificed to the demon "Dirt," and the health and physique of innumerable others are seriously undermined by this and by the wholesale supply of tuberculous milk.

LONDON, March 9, 1907.

Malta Fever.

The commission appointed to investigate Malta fever reports that the rapid disappearance of Malta fever from Gibraltar which commenced in 1885, is intimately associated with the greatly lessened importation of goats from Malta. At present Spanish goats are introduced, and it is recommended that these be quarantined until examination of the blood has shown them to be free from infection.

A Middle-Class Hospital.

A project has been started to found a middle-class hospital to be called the Knollys Memorial Hospital and to supply a long-felt want in London—a hospital for the benefit of persons unable to pay the high fees of nursing homes and yet willing to pay according to their means. Many nursing homes are established in houses never intended for the purpose, with awkward staircases, badly ventilated rooms and other drawbacks. The proposed hospital will be situated on a site near Regent's Park, opposite the Zoological Gardens, and will start with between 60 and 100 beds. There will be a graduated scale of fees, and it is hoped that the institution will be self-supporting.

VIENNA LETTER.

(From Our Regular Correspondent.)

Exaggeration of the Unhealthfulness of the Air of Towns.

VIENNA, Feb. 25, 1907.

Statistical data are now obtainable in regard to risks to which country-born immigrants to the industrial centers are exposed from the change in their mode of life and the different quality of air. According to these figures, the dangers are greatly exaggerated. The only significant difference between the health statistics of rural districts and cities is that deaths from phthisis are slightly (3 per cent.) more frequent in towns, while cancer and bone diseases (osteomyelitis, caries and fractures), seem to be more frequent in the country. The main point of interest is that diseases of the upper air passages and the exanthematous infectious fevers (air-borne diseases), are not more common in cities than in the country. As the country is less densely populated the absolute figures are different from those of the towns, but the relative figures are nearly the same. The effects of smoke, dust and overcrowding have been overestimated, or, perhaps, the country air has been underestimated in its impurity from a medical point of view; but apart from this fact, it has been proved that nervous diseases (hysteria and neurasthenia) are more common in certain rural districts than in many cities.

Correspondence

Alcohol in the Navy.

SAN JUAN, PORTO RICO, March 6, 1907.

To the Editor:—The substance of your editorial on this subject in THE JOURNAL, February 16, 1907, is so at variance with my experience that I can not let it go unchallenged, even though your deductions are drawn from the paper of my friend, Dr. Lovering.

After a service of nearly twenty years, comprising duty on all stations and in many ships, I feel safe in saying that I know of no more generally abstemious class of men than naval officers, no type more keenly appreciative of their responsibilities, no type better qualified for their duties. Conscientiousness in the matter of duty is a characteristic of the service. When you see a naval officer, no matter what the conditions he is under, nor where he may be placed, you will find that he will ring true ninety-nine times out of a hundred. There may be startling exceptions to all this at times, but when they are analyzed it will generally be found that they will not detract from the force of what I have said.

Many officers and all enlisted men are total abstainers while on board ship. The varied complicated technical problems with which they are confronted and the almost incessant drilling make this advisable in the one case and necessary in the other. Let such abstainers go on shore and meet the entanglements with which the navy is beset and they are likely to get into trouble. For example, an officer goes to a hospitable club and takes one or two drinks with insistent acquaintances. These drinks to the club habitué have little more effect than a like amount of water, while to the abstainer or moderate drinker, on the other hand, they may act as a demoralizing poison, completely upsetting him, when he at once becomes conspicuous and is pointed to as another example of a drunken naval officer, often, too, by the promoters of his undoing. The case is much the same with the men. There is no drinking among the men on board ship and comparatively little among the officers, as I have said. By being in the navy we are more or less conspicuous and are often targets for cruel shafts.

You do not know, nor do I, what goes on after dark in the homes about us in a civil community. How could we know of the extent to which drunkenness exists there? We can not judge of them, as they are beyond our reach. On the other hand, on board ship, the conduct of every officer and man is known every hour of the twenty-four, and nothing can be concealed.

The number of officers who are intemperate is rapidly growing less and the same may be said of the men. Conditions are decidedly better to-day than when I entered the service. Drunkenness is certainly on the decrease.

A word about the statistics quoted by Dr. Lovering. They are misleading. The common tipple of the British and German sailors is beer or ale. Uncle Sam's tars have a liking for whiskey. Hard drinks contain eight times as much alcohol as malt liquors and are probably eight times as disastrous to those who over-indulge. If eight men unused to liquor go on a debauch drinking whisky, with eight men, accustomed to beer, who drink beer only, it is probable that many, if not all, of the whisky drinkers will be unfit for duty afterward, and few, if any, of the beer habitués. The statistical differences quoted are due to two factors, viz., abstention on the one hand and vicious drinks on the other. The greater number of admissions for alcoholism in our navy by no means shows that there is eight times as much drunkenness as in the other services. The beer sot is quite as unfit for duty as any other, but he is probably eight times as likely to pull out of it, without seeking the sick-list, as is his whisky-drinking pal.

Our navy could not be in better hands, nor under clearer heads, than those that command it to-day. As a total abstainer, naturally, I believe that total abstinence would be ideal; that being impossible, moderate indulgence in malt liquors would be a second choice, but, as the drinkers have something to say about it, and they appear to like hard drinks, over-indulgence will be followed by admissions to the sick-list.

C. F. STOKES,
Surgeon U. S. Navy.

Diphtheria Antitoxin in the Treatment of Bronchial Asthma.

PIQUA, OHIO, Feb. 26, 1907.

To the Editor:—After an experience of more than twenty-five years in the practice of medicine, the most interesting case I ever saw was one of bronchial asthma. The reason this case was of such interest is that I was the patient.

It may be taken for granted that I patiently and persistently tried every means for the relief of this condition, but still suffered nightly with from one to three attacks, and for six years never escaped a night. It is true that I received temporary relief from various remedies, but there was always a return of the attack within three or four hours after retiring. During these attacks I tried and wore out one remedy after another, and I am sure I overlooked nothing that has ever been used by the medical profession for this condition. I used inhalations, from stramonium leaves to chloroform; also stimulants one after another, with but temporary relief. After my attention had been called to adrin or adrenalin, I used the solution 1 to 1,000 in 5 to 10 minim doses hypodermically, and while I must say that these remedies never failed to relieve an attack, yet the condition would return in three or four hours if I went back to bed. During all these years of suffering and experimenting I had been looking for some preventive—something that would free me from those nightly attacks. At last I arrived at the conclusion that a change of climate would be my only relief. Late in October, 1906, I heard of a physician who had had asthma, and while attending a case of diphtheria had given himself a prophylactic injection of 2,000 units of diphtheria antitoxin. Strange to say, his asthma cleared up. It not only protected him against diphtheria but completely relieved his asthma.

After some correspondence, and knowing from experience it could do no harm, on Nov. 14, 1906, I injected 4,000 units of Mulford's diphtheria antitoxin. For five days I experienced no result, when I had a slight chill, followed by a temperature of 102 F., urticaria and slight rheumatic pains of joints. Since this time I have entirely escaped asthmatic attacks.

I have now passed three months without a single attack of asthma, and am in better general health than for many years, and feel that the profession should know the results in my case. How diphtheria antitoxin prevents asthma I do not know. For how long it prevents it I am waiting to find out. One thing I do know and that is that it has proved a Godsend to me. I have used the antitoxin in two cases besides my own, with good results, but too recently to make a report. Dr. W. S. Dick of Columbus has used it in several cases, and will no doubt soon report it.

From experience I believe diphtheria antitoxin will give relief in all cases of bronchial or catarrhal asthma, while in cardiac asthma I would expect it to do no good.

F. E. KITZMILLER, M.D.

Pharmacology

ANTIDYSPEPTICS AND VEHICLES.

Comments on Some of the Official Preparations Available for These Uses.

The proprietary mixtures which are claimed to supply the system with digestive ferments, and which the Council on Pharmacy and Chemistry has shown to be impossible combinations, have attained wide popularity entirely through persistent advertising. However, since they are largely used, they must serve some purpose. What is it? Simply that they make excellent vehicles and occasionally are effective as antidyspeptics.

AS VEHICLES.

The choice of a proper vehicle for nauseous drugs prescribed in solution has received too little attention in the education of physicians. In consequence, many physicians have accepted eagerly the solution of the problem offered by the proprietary manufacturer and have fallen into the habit of using these preparations simply as vehicles without reference to their value as digestive agents. Apparently physicians forget or do not know that both the Pharmacopeia and the National Formulary furnish us with preparations just as serviceable as vehicles as the proprietary digestives like elixir of lactopeptine, pan-peptic elixir, peptenzyme elixir, etc.

The subject of vehicles, etc., was treated somewhat extensively in one of the series of special articles on the Pharmacopeia and the Physician (THE JOURNAL, June 23, 1906), but it may be worth while again to refer to some of these which should replace the impossible proprietaries.

When the attention of a very intelligent physician was called to the impossibility of a mixture containing the substances which the manufacturers of the Elixir of Lactopeptine claim that their preparation contains, he said that he used it simply as a vehicle, and laughingly acknowledged that its pretty color had something to do with its popularity so far as he was concerned, and undoubtedly he represented many others. The appearance of medicines is well worth the physician's attention, not only from the desire to make himself popular with his patients, but because of the effect produced by psychic impressions.

The addition of some coloring matter is frequently desirable to improve the appearance of medicines, and without doubt much of the popularity of some nostrums is due to their pretty color. An attractive bright red color can be communicated to mixtures by the use of about 1 per cent. (5 minims to the ounce) of tincture of cudbear (tinctura persionis, N. F.). Carmine will produce a red color in alkaline solutions. For brown colors, addition of the compound tincture of cudbear (tinctura persionis co. N. F.), will give the desired result, and for neutral or alkaline solutions glycyrrhizin may be used. For yellow coloring 1 per cent. (5 minims to the ounce) of tincture of hydrastis, U. S. P., may be used.

Medicines should be made as palatable as possible, and the Pharmacopeia and National Formulary contain some excellent vehicles, especially certain elixirs, which may properly supersede the proprietary vehicles. For instance we have elixir aromaticum, U. S. P., elixir adjuvans, U. S. P., elixir eriodictyi aromaticum, N. F., elixir taraxaci compositum, N. F., and the two elixirs of glycyrrhiza. The vehicle should be chosen to fit the remedy to be administered, so far as practicable, and in this respect a selection from the variety of official preparations has decided advantages over the use of a single proprietary elixir whose exact composition is not known. For salts like potassium bromid the elixir aromaticum, U. S. P., forms an excellent vehicle. Thus we may direct:

℞.	Potassii bromidi	ʒiiss	10
	Elixir aromatici	ʒij	60

M.

This mixture contains 10 grains of the bromid to the fluidrachm and is of the same composition as elixir potassi bromidi, N. F.

Sodium salicylate can also be disguised by the use of aromatic elixir. If we wish to secure the effect of color at the same time we can add five drops to the ounce of tincture of cudbear (tinctura persionis, N. F.). Thus:

℞.	Sodii salicylatis	ʒiiss	10
	Tincturæ persionis	m. xv	1
	Elixir aromatici, q. s. ad	ʒiv	120

M. Sig.: Each teaspoonful contains approximately 4¾ grains of salicylate of soda.

The taste of potassium iodid can be disguised by aromatic elixir in the same way and this vehicle is not surpassed for this purpose by any proprietary digestives.

The National Formulary contains a number of other elixirs of special salts which may be used by those who wish to prescribe elegant and palatable mixtures. Among these are elixirs of calcium, lithium, and sodium bromids, potassium acetate, salicylic acid and the various salts of iron, for which orange flower water or the syrup of orange flower are acceptable. When prolonged use of a remedy such as syrup of hypophosphites is necessary the flavor should be changed from time to time; for example, tincture of vanilla may be substituted for the syrup of orange or lemon.

For the purpose of disguising the taste of quinin the preparations of licorice are very suitable. Elixir adjuvans, U. S. P., consists of a mixture of 12 parts of fluid extract of glycyrrhiza with 88 parts of aromatic elixir. One may prescribe

℞.	Quininæ sulphatis	ʒss	2
	Elixir adjuvantis	ʒij	60

M.

This is to be triturated in a mortar and directed to be shaken before taken. No acid should be used to dissolve the quinin sulphate, since this would precipitate the glycyrrhizin, the active principle of licorice. A drachm of this preparation contains 2 grains of quinin sulphate.

Instead of the elixir adjuvans the syrup of glycyrrhiza N. F. may be used and sometimes may be preferable, as it contains no alcohol. Ammonium chlorid is a nauseous salt which is best disguised by syrup of glycyrrhiza.

The bitters used as appetizers and as stomachics owe their therapeutic effects to their bitter taste, so that concealment of this taste tends to defeat the purpose for which the medicine is given. Still if it is thought best to disguise the taste the syrups form appropriate vehicles. Thus we may give nux vomica with syrup of orange, improving the appearance by the use of cudbear if desired.

℞.	Tincturæ nucis vomicæ	ʒiiss	10
	Tincturæ persionis	m. xv	1
	Syrupi aurantii	ʒiv	120

M.

AS ANTIDYSPEPTICS.

All the proprietary antidyspeptic remedies contain alcohol and aromatics, to which, undoubtedly, what therapeutic virtue they really possess, is due. In cases of distress after meals the physician, as well as the patient, naturally seeks something to allay the present discomfort while waiting for the result of investigation into the cause of the symptoms and the slow improvement that is apt to attend strictly rational treatment. And there are many official remedies that will answer the purpose fully as well as the much-vaunted proprietaries.

Alcohol has a stimulating action on the functions of the stomach and especially in the form of wine will often relieve the uncomfortable feelings that come on after eating, and herein lies one of the principal reasons for the popularity of mixtures containing alcohol. The carminatives, such as cardamom, cinnamon, allspice and ginger will give relief in most cases. Peppermint, chamomile, anise, etc., have a well-deserved reputation for relieving flatulence, colic, and similar conditions. Chloroform is both anodyne and antiseptic and is a valuable remedy in the milder forms of gastralgia. Alkalies are often beneficial and especially in hyperacidity, but are frequently given in insufficient doses.

While a physician should attempt to individualize in the use of these remedies, sometimes it may be advisable to give them in combination, and the Pharmacopeia and National Formulary present a number of excellent combinations which may be used in such cases. As a combination of alcohol and aromatic carminatives, the compound tincture of cardamom, U. S. P., is superior in safety and efficiency to any nostrum on the market. It contains cardamom, cinnamon, caraway, cochineal, glycerin and alcohol. In addition to its therapeutic properties it has a pleasing red color, which may serve the purpose of suggestion. The tinctura aromatica N. F. is a similar preparation. The average dose of the former is one teaspoonful, of the latter 30 minims. Mistura carminativa contains carminatives and alkalies, but it also contains opium, and, therefore, should be used with the presence of that drug in mind, especially when given to infants. For adults the amount of opium is so small that a drachm contains only one and a half minims of laudanum. Pulvis cretæ aromaticus combines carminatives with an alkali and may be used for hyperacidity. The average dose of 2 Gm. (30 grains) contains enough alkali to neutralize the free acid in 250 c.c. (8 ounces) of normal stomach contents, so that probably twice this dose should be used for full effect.

Incidentally it may be said that most proprietary digestive remedies contain acid, while the majority of cases of dyspepsia require an alkali. In cases in which an acid is indicated, however, the dose should be much larger than those afforded by the proprietary mixtures. If it has been ascertained that a digestive agent is really needed the simplest way is to prescribe pepsin with large doses of hydrochloric acid, which should be well diluted in administration, but if a ready-made digestive mixture is desired the liquor pepsini N. F. may be used, although it also contains an insufficient amount of hydrochloric acid. The elixir, essence, and wine of pepsin of the National Formulary are better suited for use as aromatics and stomachics than as digestive agents, but are worthy of consideration as substitutes for the proprietary digestive mixtures.

In conclusion, the use of these remedies should be regarded merely as palliative and should not be allowed to obscure the need of thorough investigation and treatment of the disease which underlies the symptoms.

The chief value of the digestive ferments should be as pharmaceutical or biologic reagents rather than as true therapeutic agents, namely, for the preparation and predigestion of food articles as indicated in the peptonization of milk.

EXAMINATION OF DIGESTIVE FERMENTS.

A Further Report on the Digestive Power of Lactopeptine.

Dr. Charles H. Miller, assistant professor of pharmacology, Northwestern University Medical School, has voluntarily conducted some experiments for the purpose of learning whether or not Lactopeptine Powder is effective either as an amylolytic or a proteolytic ferment. The following is Professor Miller's report of his experiments, which should be read in connection with the report of the Council on Pharmacy and Chemistry, published last week:

Herewith I send report of tests made by myself relative to the digestive powers of Lactopeptine Powder—obtained from an original sealed package. Being interested in the examination of digestive ferments, I was prompted to take up Lactopeptine Powder because it is a preparation widely advertised. The observations are in accord with the report of your Council, published in THE JOURNAL, March 16.

A. AMYLOLYTIC POWER: ACTION OF PANCREATIN AND DIASTASE.

1. Gelatinized starch paste. Subjected to action of Lactopeptine in amount equal to 50 per cent. by weight of starch (before cooking) at 100 degrees F. for a total of 12 hours. Tested hourly for disappearance or modification of starch reaction.

No change was observed in mucilaginous consistence of the starch paste or purity of the starch reaction with iodin.

Control: The same quantity (30 c.c.) of the same starch paste was practically instantaneously changed to a thin liquid, in which the starch reaction was completely lost within five minutes, after the addition of 2 c.c. saliva; in other words, 2 c.c. of saliva within five minutes converted 1.5 gms. of starch into dextrin and sugar, while 0.66 gm. Lactopeptine was without action on the same quantity after 12 hours.

2. A second test was made in the same way, except that an alkaline reaction was given with $NaHCO_3$.

The result was identical. No action could be detected.

Control: A similar mixture plus 2 c.c. of saliva was converted within five minutes, with disappearance of the starch reaction.

Conclusion: It is therefore evident that the preparation contains neither pancreatin nor diastase.

B. PROTEOLYTIC POWER: ACTION OF PEPSIN.

Coagulated egg albumin in glass tubes of 2 cm. in length and 5 mm. diameter, open at either end and completely filled, was subjected to digestion for a total of 24 hours, at a temperature of 100 F., as follows:

Digestant	Quantity	Medium	Results	
			12 hours	24 hours
Lactopeptine	0.33 Gm.	0.2% HCl	1/20 digested	1/10 digested
Lactopeptine	0.33 Gm.	H_2O	inactive	inactive
Lactopeptine	0.33 Gm.	Alk. H_2O	inactive	inactive
Blank	Blank	0.2% HCl	inactive	inactive
Scale pepsin	0.3 Gm.	0.2% HCl	1/2 digested	All digested
Pancreatin 5 yr. old specimen	0.3 Gm.	Alk. H_2O	1/8 digested	1/4 digested
Wampole's papain digestant*	4 Cc.	H_2O	inactive	inactive

Conclusion: Lactopeptine is apparently equivalent in proteolytic power to the Pepsinum Saccharatum of the U. S. P. 1890, which was a 10 per cent. preparation and, like it, Lactopeptine is only active in acid media. It is devoid of active enzymes other than the pepsin, and while the powder is feebly acid in reaction, no activity could be shown when water was the medium employed.

CHARLES H. MILLER.

Miscellany

Campaign Against Malaria in Italy.

Passed Assistant Surgeon McLaughlin, of the Public Health and Marine-Hospital Service, makes a further report on the measures taken to preserve health in malarial regions in Italy. A summary of his previous report appeared in THE JOURNAL, Dec. 22, 1906, page 2113. In Italy, from time immemorial the rural population has been stricken by the disease, while the inhabitants of the cities have generally escaped. At present the majority of cases, both of acute and chronic malaria, are found in the country, but railway employés and soldiers suffer greatly from malaria. The longest lines of Italian railroads extend along the littorals of the Mediterranean and Adriatic on flat land which is often below sea level. The mountains rising above the flat land were formerly covered with forest, but are now perfectly nude. Similar conditions exist where the railroads, as is often the case, follow the course of a river through a wide valley. The railroads pass through many sections devoted to the cultivation of rice and the maceration of hemp, and it is not surprising that railroad employés should suffer greatly from malaria. So far as the army is concerned, there are fortifications and posts in the very worst of these malarial zones. The Guardie di Finanza, who are considered part of the army, are required to patrol every foot of this malarial coast line.

A law of Nov. 2, 1901, with the object of combating malaria, imposed certain duties on proprietors of land, on the employers of labor, and, in a word, on all persons who had workmen or laborers dependent on them in malarial zones. These persons are charged with the duty of diffusing the knowledge of malaria and the means of combating it among the country people and others employed by or dependent on them. As the country people are generally unable to read, it is necessary for the proprietors to explain verbally the contents of the government publications issued with this object in view. One of the most complete is that of the Royal School of Agriculture, at Portici (near Naples), entitled "Popular Points on the Relation Between Malaria and Agriculture."

Until July 1, 1905, all the Italian railways, although the property of the state, were operated by private companies.

* Said to contain pepsin, pancreatin, papain and diastase.

Each of these companies had its own special rules regarding malarial zones and the extra compensation allowed workmen employed therein. These companies were among the first to conduct experiments on the mechanical protection against mosquitoes by means of wire netting. The famous experiments of Professor Grassi, made from March to October, 1905, in the plain of Capaccio, near Salerno, one of the most virulent malarial zones in Italy placed the theory of mechanical protection against mosquitoes on a firm, practical basis, and the larger part of the expenses of these experiments was paid by the company operating the Mediterranean Railway system. When the Italian government took charge of the operation of the railways it became necessary to have uniform regulations regarding all matters, including malaria.

All the employés who serve or who have residence in a malarial locality are allowed an increased daily compensation. Temporary employés in these districts have no such rights. The right to this indemnity is not extended to employés receiving more than 3,000 lire ($570) per annum, or to laborers who receive more than 8.50 lire ($1.62) per diem.

The mechanical protection against mosquitoes and the administration of quinin are obligatory under the laws. The results as regards the railroads are not yet in evidence, too short a time having elapsed since the government assumed actual control of the railroad system.

In April, 1905, the head of the army medical department issued a circular to the directors of health of the various army corps of the kingdom, in which he prescribed the prophylactic and therapeutic measures to be employed against malaria. In another circular of the same month he added some important details with regard to registration of cases. It is now obligatory in the army to maintain special registers of malarial cases, noting the manner and variety of the infection, the technic of the scientific researches made, and the method of administering the quinin. This system has been in practice too short a time to draw conclusions as to results in the army.

Eradication of Malaria from an Egyptian City.

Some interesting information regarding the eradication of malaria from the city of Ismalia is given in the *Osterreichische Sanitatswesen*, Vienna.

The city of Ismalia was founded in 1862, and now has 8,000 inhabitants. It is situated in the goverment district of the canal on the north shore of Lake Timsah, which is intersected by the canal at about an equal distance between the Red Sea and the Mediterranean. The health conditions of Ismalia were considered favorable, but in 1877 malaria broke out in the city with such intensity that by 1886 nearly every inhabitant had been attacked. After many unsuccessful attempts to overcome the disease the Suez Canal Company, in 1901, undertook to put into effect active measures for the destruction of mosquitoes, which were beginning to be recognized as agents in the diffusion of malaria. These measures were carried out during a period of two years with the result of completely eradicating malaria from the city.

Three theoretical methods for the local campaign against malaria were considered: 1. Cure by quinin or removal of all fever patients. 2. Protection of inhabitants against the bite of mosquitoes. 3. Extirpation of mosquitoes (winged insects and larvæ). The canal company adopted two methods. The sick and a large number of the unaffected inhabitants were treated with quinin. Simultaneously with this treatment a search was begun for anopheles in the vicinity of Ismalia in the adult and larval forms and for the ordinary stinging flies. This search was followed by an endeavor to sanitate the ground and standing water and refuse.

The first discovery of anopheles was made about the beginning of August, 1901, at a time when the city generally was free from mosquitoes. A few days later they were found to be generally diffused. The captured mosquitoes were found for the most part to belong to the variety *Anopheles pharonensis*, which are universally present in North Africa, and the *Anopheles chaudoyei*, known in Algeria. It was found that the critical season began about July and that a breeding place of the anopheles existed in the eastern part of the city. All the stagnant water in the vicinity of Ismalia was examined for anopheles larvæ. These were found in every pool and puddle formed in the cultivated land near the town, in the irrigation and drainage canals, and in deposits of water formed by infiltration from the fresh-water canal.

No larvæ were found on the reeds or water plants along the shore of the canal, and none in the large marshes or in canal water. Experiment in the life duration of larvæ after partial drying showed that they recovered their vitality after several hours' exposure on dry sand when placed again in water. These conclusions indicated that for the destruction of the anopheles mosquito it was necessary to eliminate all the deposits of water in which the larvæ were found. Numerous observations showed further that the culex and stegomyia mosquitoes existed in great numbers throughout the entire year, in ditches, drains, kitchen and laundry waste water and water containers in houses. The larvæ of the stinging flies were also found in pools, puddles and drainage canals.

On December 27, at a conference of the canal company, it was determined to lay down a definite program for the work of extirpation. It was decided to increase the flow of water in the canals. New drainage canals were provided, larger water basins were allowed to dry, small depressions were filled with earth or sand, the drainage canals were deepened, and reeds and water plants were cut down or uprooted.

Since the completion of this work no mosquito larvæ have been found in the water in the sanitated area, although some isolated anopheles have been found at the beginning of summer in the city itself. The place of origin of these isolated mosquitoes is believed to be Nefiche lagoon, which is very irregular in shape and has a shore line covered with small pools. The work of drying out part of the marsh and filling in the remainder was begun in the spring of 1906.

In order to destroy any mosquitoes that might harbor in houses, a service was organized for the purpose of visiting each house weekly and emptying all standing water or, when that was impossible, oiling the water and treating all sinks and drains with a mixture of crude and refined petroleum.

The results of the sanitary work may be stated as follows: Since the beginning of 1903, mosquitoes and all varieties of stinging flies, which were previously present at Ismalia, have disappeared, and the inhabitants have been able to dispense with mosquito nets. Since the autumn of 1903, no larvæ of the anopheles have been found in the area of sanitation which surrounds the town at a distance of about 1,800 meters from the last house. Since 1902, a marked decrease in the prevalence of intermittent fevers has been observed, and since 1903 not one case of malaria has been reported in Ismalia. The number of the malarial patients, which in 1877 was 300, rose in 1886 to more than 2,500, in 1902 to more than 1,500, in 1903 was only a little over 200, and in 1905 amounted to only about 50 cases.

Isolated anopheles continue to be found in the autumn of each year. They are probably conveyed to Ismalia by the wind or by railway or ship travel, and constitute no source of danger to the city. The original importation of malaria into Ismalia is referred to the numerous Italian laborers employed on the Ismalian Canal. These laborers probably brought the disease with them.

Crusade Against Yellow Fever in Mexico.—E. Liceaga is president of the national public health service in Mexico, and at the recent meeting of the American Public Health Association at Mexico City in December, he described the methods in vogue for extermination of yellow fever in Mexico. They differ to some extent from those employed elsewhere, although based on mosquito transmission. In Vera Cruz, for instance, where yellow fever had been endemic for three centuries, the city is divided into districts proportional to the number of resident non-immunes. Each district is in charge of a physician with a force under him which keeps a record of all the non-immunes and visits them daily, in order to discover at once the first appearance of the disease. This force also attends to petrolizing and draining away the deposits of water and disinfecting the contaminated houses. The sick are placed in previously fumigated, thoroughly screened rooms. In order

to be sure that disinfection is complete mosquitoes are introduced into the rooms and placed in conditions unfavorable for the action of the disinfectant. Disinfection is not considered complete until all these mosquitoes are killed. The service also has means to prevent the escape of mosquitoes from the contaminated house, even when it is a mere shack (by covering the house with sheets of duck, etc.). The service also keeps sanitary agents on the trains entering or leaving contaminated places, in order to detect cases among the passengers. Liceaga pays a high tribute to the states of the republic which placed at once the entire matter of repression of yellow fever in the hands of the central government, thus facilitating concerted action at various points. Besides the mosquito brigades in nine different cities, flying brigades are sent to various points on suspicion. At the date of his address, December, 1906, not a case of yellow fever had been known throughout the whole land for several months.

Improved Technic for Taking Temperature of Body from the Urine.—M. Engländer has revived the method of taking temperature from the urine, and believes that he has eliminated and overcome the previous objections to this method. With his technic he states that the findings of the temperature are more constant than with any other method, while slight fluctuations are more accurately registered. His aim was to take the temperature in the flowing stream, in a vessel that did not have to be previously warmed, and he thus uses a funnel made of strong filtering paper. As this absorbs the urine at once, there is no need to heat it beforehand. The sheet of filtering paper, 15x12 cm., is folded once, and again to make a funnel, and the tip is cut off, leaving an opening 9 mm. in diameter. Two slits are cut in the paper, the diameter of the thermometer, which is slipped through the slits and is thus held in place, the mercury bulb near the opening in the tip of the funnel. It is thus laved in the urine passing over it and filling the funnel, and in his countless tests with the method he never found the temperature in the axilla quite so high as the temperature of the urine. The most constant parallelism was noted in patients in bed or in closed, warm rooms. The difference may amount to nearly a degree centigrade under other conditions, even when the thermometer is kept in the axilla for half an hour. After long walks, hot baths or the like, the temperature of the urine was from one to one and a half degrees higher than the temperature in the axilla, demonstrating the greater precision of the urine technic. The thermometer registers the maximal temperature in from 7 to 12 seconds, even with only 100 to 150 c.c. of urine. His communication was summarized in the *Wien klin. Wochschr.*, xx, 117, 1907.

The Barlow Medical Library.—The Barlow Medical Library of Los Angeles, Cal., was dedicated and formally turned over to the trustees, February 7. The program of the exercises and the various addresses and speeches delivered at that time are given in full in the *Southern California Practitioner*, February, 1907. As was mentioned in THE JOURNAL, March 2, 1907, page 804, the library building, which cost over $30,000, was the gift of Dr. W. Jarvis Barlow. It is situated near the College of Medicine of the University of Southern California, but the relationship between the two institutions is geographical only. In return for having the building erected so close to the college, the latter institution donated nearly 10,000 volumes and publications from its own shelves to the new library. The building is a handsome structure, monolithic in character, being constructed largely of re-enforced concrete, making it both fireproof and earthquake-proof. The library is to be managed entirely by its patron members, this membership being open to any physician who pays annual dues of $25. The use of the books is free to all members of the medical profession and to all medical students. The profession in southern California is to be congratulated not only on having a substantial nucleus to the formation of a library, but in being the recipient of a handsome and modern building devoted exclusively to library purposes.

Fatal Postoperative Myxedema After Thyroidectomy.—Garbini relates in the *Riv. di pat. nerv. e ment.*, 1906, page 553, a case of severe tetany preceding and accompanying postoperative myxedema in a woman of 36. She presented symptoms of pellagra and brief tetanic spasms at times, with difficulty in swallowing from pressure of a large goiter on the pharynx. After total removal of the thyroid gland the previous irritable disposition became a delirium of persecution, but the tetany became attenuated. The patient succumbed to progressive postoperative myxedema and debility. He reviews the literature on the subject and ascribes the tetany to functional insufficiency of the parathyroids, injured or compressed by the enlarged thyroid. Thyroid treatment was instituted too late for it to have much influence on the course of the affection. The lesions noted in the nervous system he believes were the result of the action of the toxins circulating in the blood after the total removal of the thyroid and parathyroids; the pathologic anatomic findings explain the symptoms observed. The case further shows amply that the hypophysis and thyroid are incapable of vicarious action, and that the products of the hypophysis include both granules and plasmosomes. The suppression of one or the other causes a different train of symptoms which explains the variability in the findings of various authors in the clinic and in experimental work.

Forty years of Enteric Fever in Philadelphia.—The weekly reports of the United States Public Health and Marine-Hospital Service give statistics regarding the occurrence of enteric fever in Philadelphia since 1862, which show that the disease has been endemic in that city for the last forty years. Study of the conditions present indicates that the disease is water borne, and the distribution of the water supply in the city enables an instructive comparison to be drawn between the effect of filtered and unfiltered water. Parts of Philadelphia are supplied with unfiltered water from the Schuylkill and part from the Delaware, while other parts are supplied with filtered water. The parts supplied with filtered water show decidedly less prevalence of typhoid than those where the water is unfiltered. The banks of the Schuylkill are inhabited by an increasing population which pours its sewage into the river to be later drunk by the people of Philadelphia. The same is true of the Delaware, which drains another state. Legislation to prevent this contamination of the water supply does not seem feasible, so that the only resource of Philadelphia is to filter the water. An extensive system of water filtration is now in process of construction at this city.

The Ideal Medical Journal.—Leartus Connor, in the *Bulletin of the American Academy of Medicine*, gives what he considers the most important factors in the make-up of a good medical journal. It should be one, he writes, that has something to say, says it and then stops. Such a journal, while expressing views to which we may take exception and giving reasons which we can not accept, is read with pleasure because there is neither ambiguity nor superfluity in the style. He believes, further, that a journal should avoid repeating the same facts in the same relations in successive issues; that is, should religiously abstain from rehashing facts stored away in ancient text-books; that it should have no place for matter that has not been fully digested by the writer. In addition, Connor would have his journal give its advertisers their due, but he objects to feeding them with food that the subscriber pays for—in short, the reading pages should be held exclusively for the subscriber. Finally, he wants his journal to do what it can to free from their shackles physicians who are bondsmen to commercial greed. Such a journal he believes to be a possibility, and that the time is not distant when medical journals will satisfy the requirements of those even more exacting than he.

Peril of the Strong Man.—Staff Surgeon A. Gaskell, F. R. C. S., of the British navy, in an appendix to the annual statistical report of the health of the navy for 1905, just issued, makes a severe indictment of the methods of physical training in vogue with British sailors. He contends that it is not the man of giant physique and great muscular development who is the really strong man, but the man who is constitutionally sound and who has all parts of his body working in perfect union. He deprecates the excessive use of gymnastic exercises which, while they may enormously develop certain muscles and may give the appearance of robust health, are often rather a source of weakness.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

A Course in Medical Economics.

J. N. MC CORMACK.

I was much interested in the communication from my friend, Dr. Ingals, in THE JOURNAL, February 9, page 535, in regard to the course in Economics recommended to be established in all medical colleges by the Council on Medical Education. I have given much careful thought to this subject on account of its pressing importance to both the profession and the people of this country, and am convinced that the fear of Dr. Ingals that there will be difficulty in finding men qualified to fill this chair is more imaginary than real. Even if the character and scope of the instruction to be given had not been so fully outlined by the Council, it is such a practical, common-sense work, there would be so much in the experience of either the successful or the unsuccessful man from which pertinent object lessons could be constantly drawn, that anyone at all endowed with the teaching faculty could readily take it up.

For instance, the ordinary principles of honesty and probity, of earning what is demanded by competent, faithful service, which should govern in all business affairs, could be easily elaborated and adapted to the special needs of medical men in such a way as to make them most valuable and impressive. The students should have it urged on them until it becomes a conviction and habit of thought and life, that if they do not at the outset, and always, make of themselves the most competent physicians of which their brains are capable, it is criminal for them to practice medicine, and that this criminality is not in the least lessened by the fact that a diploma and license legalizes the sin of omission or commission, or that the grave covers the victims. It should be just as impressively urged that if, after qualifying themselves, they consent to practice for a rate of fees so small as to deprive them and their professional neighbors of the literature, equipment and postgraduate facilities essential for constant, up-to-date service to the people, they are equally criminal. The downright dishonesty of a division of fees without the full knowledge of the payor, or of accepting commissions from druggists, should be taught them instead of, as in the past, turning them adrift at graduation without a word to guide them and then criticise them because they go wrong.

The responsibility involved in testifying as experts, in accepting positions as pension and insurance examiners, and all similar professional and semi-professional duties, the importance of telling the truth, of dealing out fair and even-handed justice, regardless of the source of employment or appointment, should not be difficult to teach. Justice is being perverted and the profession is being brought into reproach every day, and men high in the ranks of the profession, some of them great teachers, are setting a bad example in these matters, for the lack of such training, and it might be well after the course is well under way to invite many of the faculties to take it. In the same way a correct system of medical bookkeeping, the advantages of card index accounts over the old day-book and ledger methods, the importance of systematic monthly collections, and the actual benefaction of this plan in the case of wage-earners and other people of small means, while the accounts are small, while they remember and are grateful for the services, could be readily and most profitably taught. The importance of, and the reasons for, better business methods, of exacting compensation from ministers and all others who are able to pay for services, to enable the profession to do a far better and more discriminating charity for the real poor, could be easily made plain. And all the time it should be insisted on that whenever they stop studying, cease to keep abreast of the times, as honest men, they ought to quit practicing.

The Principles of Medical Ethics, the combined and crystallized experience and wisdom of all the centuries, should be read, section by section, and so explained and expounded as to adapt them to all of the complex conditions incident to the life of a physician, indoctrinating them with their real spirit, and making them the chart and compass of all future life. The majority of men want to do right. The majority of those who go wrong in our profession do so for the lack of instruction rather than from bad intention at the outset. The curse and blight of jealousy and evil speaking, confined always to those practicing in the same community, and the universal experience that no one has ever permanently profited by yielding to the temptation to take part in these things, or by the practice of any of the "Black Arts," should be iterated and reiterated until the faces of young men are set against these besetting sins. The advantages of partnerships, or other methods of converting ours from a competitive into a cooperative profession, and of thus immeasurably increasing its usefulness and power, especially in small towns and country districts, should be made plain and practical.

Our system of medical organization, what it means, what it stands for, the value of membership, especially in the county society, the importance of securing this at the first meeting after being licensed, and of acquiring the habit of attending the society and of taking part in every meeting, the possibility of developing the society into a real postgraduate school, would all be things easy and pleasant to explain, and could usually be made to determine the success and to double the usefulness of a majority of the students.

The very fact that men like Dr. Ingals look on the inauguration of this work as difficult only emphasizes the importance of starting it without further delay. Next to a proper entrance requirement for all students, this is now by far the most important feature of the reorganization movement. For the lack of such training in the past a large part of our profession is now in poverty, and the profession as a whole is constantly crippled in its effectiveness. As soon as the necessity for the course is fully realized, it will be easy for any college worthy of the name to develop a competent teacher. Those not willing to take the trouble to do this, and thus start their graduates in the right direction, instead of turning them adrift when it is known that a majority of them will make practical shipwreck of their lives, as has been done in the past, should close their doors and let better schools occupy the field. I am satisfied that Dr. Ingals could teach such a course admirably, after reading the announcement of the Council, and I take pleasure in nominating him for the position in one of the best of the Chicago schools.

Urges Illinois Physicians to Favor Legislation.

The Public Policy Committee of the Illinois State Medical Society has issued a circular to the members of the state society, asking their cooperation and assistance in obtaining the passage of bills now in the state legislature, providing for the improvement and enlargement of the public institutions of the state, as well as the establishment of a state epileptic colony and a state sanitarium for the treatment of tuberculosis. These projects have been endorsed by the State Board of Charities and have the support of Governor Charles S. Deneen. It is also proposed to authorize the State Board of Health to distribute free antitoxin and to provide funds for this purpose.

Societies Agree on Insurance Fees.

The following additional societies have recently adopted resolutions opposing the lowering of insurance examination fees:

CABELL COUNTY (WEST VIRGINIA) MEDICAL SOCIETY.
MORGAN COUNTY (ALABAMA) MEDICAL SOCIETY.
LORAINE COUNTY (OHIO) MEDICAL SOCIETY.
CONECUH COUNTY (ALABAMA) MEDICAL SOCIETY.
HARRISON COUNTY (MISSISSIPPI) MEDICAL SOCIETY.
HEMPSTEAD ACADEMY OF MEDICINE, PORTSMOUTH, OHIO.
FRANKLIN COUNTY (PENNSYLVANIA) MEDICAL SOCIETY.
HOUGHTON COUNTY (MICHIGAN) MEDICAL SOCIETY.
TIPPECANOE COUNTY (INDIANA) MEDICAL SOCIETY.

Pays Full Fee Schedule.

Dr. W. S. Kendrick, Atlanta, Ga., Medical Director of the Southern States Life Insurance Company, announces that this company pays medical examiners for all manner of examinations, even the smallest, a fee of $5,, and that it will be the policy of the company to continue this as its minimum fee.

County Societies Organized.

The physicians of Mercer County, W. Va., met at Bluefield and organized the Mercer County Medical Society, electing Dr.

J. Bee, Princeton, president; Dr. D. P. Crockett, Goodville, and Dr. Charles A. Easley, Bluefield, vice-presidents; Dr. W. C. Slusher, Bluefield, secretary.

The Medical Society of the Twenty-fifth Recording District of Indian Territory, formerly known as The Medico-Clinical Society, has reorganized and become the Bryan County Medical Society. The following officers have been elected for the coming year: Dr. Albert S. Hagood, Durant, president; Dr. James L. Shuler, Durant, secretary and treasurer. The new organization begins work with 18 members.

Dr. C. A. Coffelt, councilor for the Twenty-fifth District of Missouri, has organized the Webster County Medical Society. At a meeting held at Marshfield, February 27, the following officers were elected: President, Dr. M. Highfiell, Marshfield; vice-president, Dr. J. A. Rabenau, Fordland; secretary, Dr. W. R. Beatie, Rogersville; treasurer, Dr. E. M. Bailey, Elkland.

Discourage Contract Practice.

The Tippecanoe County (Ind.) Medical Society considered the question of contract practice at a recent meeting. A committee appointed to investigate the matter reported that a limited amount of contract practice was being done by physicians of the county not members of the society. The society voted that it was the duty of all members to use all honorable means to discourage contract practice.

McCormack in Arkansas.

In a communication just received, Dr. J. N. McCormack states that he spoke before a joint session of the houses of the Arkansas Legislature at Little Rock, March 14, to a most enthusiastic audience. Of course he spoke on the "patent-medicine" question. He called the attention of the legislators to the fact that the newspapers were subsidized by the "patent-medicine" men, and warned them that his talk would not appear in the newspapers the next morning. It did not, nor was any reference made to the meeting. Several members interrupted him to say that what he said regarding the newspapers was true, as they (the members of the Legislature) had received letters from the papers in the interest of "patent medicines" and against the proposed legislation. The Senate had already defeated the Bok bill, otherwise things might have turned out differently in Arkansas.

Resolutions for the Year.

The Warren County (Pa.) Medical Society has issued a program for the year, which contains the following excellent pledge:

Resolved, That during the coming year I will do all in my power to assist in the uplifting of my profession and the upbuilding of my county medical society. I will devote the necessary two or three hours each month to attend the meetings and will endeavor to prove myself an active and willing member.

I desire and resolve to be more kindly tolerant of the opinions of my confrères, and to extend to every worthy colleague the degree of courtesy which I would have him extend to me; I resolve to stand for true friendship, confraternity, and the highest type of professional honor, believing this to exemplify the only real types of success worthy of attainment.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

THE SPRAGUE MERCANTILE AGENCY.

Following the publication of a letter and comments on this firm in THE JOURNAL last week, page 967, we have received a number of letters reporting unpleasant experiences with this agency. They give us the decided impression that the writers consider this agency one which it will be well for physicians to leave alone.

WHERE MOSQUITOES BREED.

HAINES CITY, FLA., March 12, 1907.

To the Editor:—Can mosquitoes breed in water that does not contain some admixture of rainwater? L. B. OHLINGER, M.D.

ANSWER.—Yes. Most mosquitoes prefer water that is stagnant or contaminated with sewage or otherwise. You will find an interesting article by Dr. A. H. Doty in THE JOURNAL, April 26, 1905. He says that the different varieties of mosquito have various preferences. All need water for the development of their eggs, and all varieties except *Culex solicitans*, the mosquito of the salty marshes, lay their eggs in water. *Culex solicitans* lays them on the ground, where they develop when the ground is flooded. *Culex pungens*, the ordinary mosquito, lays its eggs in water near dwellings, preferring contaminated water, and the same appears to be true of the *Stegomyia;* while *Anopheles* lays its eggs in cleaner water, in shallow pools along the banks of streams, etc. As pure rain water contains no peculiar ingredients there is no evident reason why the mosquito eggs could not develop with a supply of water from another source.

EFFECTS OF LIGATION OF THE VASA DEFERENTIA.

OWENSBORO, KY., March 2, 1907.

To the Editor:—Will you please tell me what effect ligation of the vasa deferentia has on the sexual life and organs of the subject. O. W. RASH.

ANSWER.—The normal testicle possesses two functions: 1, the production of spermatozoa for the reproduction of the species, and 2, an internal secretion which endows the individual with those qualities known as masculine. The escape of the spermatozoa may be prevented without influencing the functions of the testicle, as spermatozoa have been aspirated from the testicle many years after division of the vas deferens. The only effect, therefore, of obstruction of the vasa deferentia, as not infrequently happens in bilateral epididymitis or following ligation or resection, is to render the individual sterile, but not impotent.

BAD ENGLISH.

CANON CITY, COLO., Feb. 25, 1907.

To the Editor:—Dr. Baldwin, in THE JOURNAL, Dec. 22, 1906, p. 2108, writing concerning the letter of Dr. Keen on "Bad English," p. 1579 of THE JOURNAL, Nov. 10, 1906, appears to me to base his criticism on the assumption that what Dr. Keen calls "an atrocious misuse of the language," in the second instance cited, consists in the use of the word "case" instead of "patient." My impression was, and still is, that Dr. Keen intended to condemn the use of the word "operated" instead of the words "operated on." The use of the word "case" for "patient" is in a degree excusable, but to say the patient or case was "operated," instead of "operated on," is surely "an atrocious misuse of the language" for which there is no excuse. I can not believe that Dr. Keen "strained at a gnat and swallowed a camel." T. B. MOORE, M.D.

POTENCY OF DIASTASE IN MALT EXTRACTS.

BAD AXE, Mich., March 13, 1907.

To the Editor:—Landois and Sterling's "Physiology," vol. I, p. 256, 4th edition ("Text-book of Human Physiology," Landois, 10th edition, p. 266), states that "ptyalin differs from diastase—the ferment in germinating grain—insofar that the latter first begins to act at 66 degrees C." If that is the case the diastase sold by the manufacturers to the profession either in digesting mixtures or malt extracts is useless. D. CONBOY.

ANSWER.—This statement of Landois is certainly incorrect and probably is an error which arose from the temperature at which the maximum effect occurs, being taken for that of the possible action. As has been frequently proved by experiment, the ferment of malt will convert starch into dextrin and malt sugar through a wide range of temperature and very readily at the temperature of the body 37 C. (98.6 F.). William H. Howell, "Amer. Text-book of Physiology," vol. I, p. 286, 2d edition, says: "Diastase shows a maximum action at 50 degrees C. and is destroyed at 80 degrees C. The National Dispensatory quotes J. F. C. Jungk (*Amer. Pharm. Jour.*, June, 1883, p. 289), as stating that "properly prepared extract of malt should convert its own weight of starch into dextrose at 16.6 degrees C. (62 F.) in 40 minutes, or at 37.8 C. (100 F.) in 10 minutes. The usefulness of malt extract is much restricted by the fact that salivary and intestinal ferments are almost always present in sufficient amount to dispose of the starch taken as food.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending March 16, 1907:

Davis, Wm. B., deputy surgeon general, is relieved from station at Governor's Island, New York, and will take station in New York City, in connection with his duties as chief surgeon, Department of the East.

Edger, Benjamin J., Jr., asst.-surgeon, ordered to proceed from Fort Reno, Okla., to Washington, D. C., on March 11, as a witness for the Senate Committee on Military Affairs, in the investigation of the Brownsville affair.

Kiersted, H. S., asst.-surgeon, granted 3 months and 15 days' leave of absence to take effect on the date of his arrival in the United States from Alaska.

Woodruff, Charles E., surgeon, is appointed chief surgeon and chief sanitary officer of the Camp of U. S. troops and militia to be established at the Jamestown Ter-Centennial Exposition, and he will proceed to Norfolk, Va., and there take station, establishing an office at the Exposition grounds in connection with his said duties.

Crampton, Louis W., deputy surgeon-general, leave of absence extended 7 days.

Marshall, John S., examining and supervising dental surgeon, granted an extension of fifteen days to his sick leave of absence.

Holmes, Thomas G., contract surgeon, granted an extension of one month to his leave of absence.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending March 16, 1907.

Urie, J. F., surgeon, ordered to the Bureau of Medicine and Surgery, Navy Department.

Smith, F. W., asst.-surgeon, ordered to the Naval Hospital, New York, N. Y.

Hayden, R., asst.-surgeon, ordered to the Naval Medical School Hospital, Washington, D. C.

Valz, E. V. asst.-surgeon, ordered to the Naval Medical School Hospital, Washington, D. C.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended March 13, 1907:

Kalloch, P. C., surgeon, granted leave of absence for 2 days.

Amesse, J. W., P. A. surgeon, granted leave of absence for 14 days from May 4, 1907.

Glover, M. W., P. A. surgeon, granted leave of absence for 6 days from Feb. 23, 1907.

Boggess, J. S., P. A. surgeon, granted leave of absence for 7 days from March 17, 1907.

Ashford, F. A., asst.-surgeon, relieved from duty at Ellis Island, New York, and directed to proceed to San Juan, Porto Rico, reporting to the Commanding Officer of the Revenue Cutter *Algonquin* for duty and assignment to quarters.

Goldsborough, B. W., acting asst.-surgeon, granted extension of leave of absence for 2 days from March 4, 1907.

Nute, A. J., acting asst.-surgeon, granted leave of absence for 2 days on account of sickness, from March 3, 1907.

APPOINTMENTS.

Dr. Henry Goldthwaite was appointed an acting asst.-surgeon effective from date of oath.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended March 15, 1907:

SMALLPOX—UNITED STATES.

Florida: Anthony, Feb. 18-24, 1 case; Jacksonville, Feb. 24-March 2, 1 case; Tampa, March 2-9, 1 case.

Georgia: Augusta, March 5-12, 7 cases.

Illinois: Belleville, Feb. 22-March 1, 1 case; Chicago, March 2-9, 1 case; Galesburg, Feb. 23-March 9, 9 cases; Springfield, Feb. 21-28, 1 case.

Indiana: Elkhart, March 2-9, 1 case; Lafayette, Feb. 25-March 11, 3 cases; Michigan City, Feb. 1-28, 1 case; South Bend, Feb. 23-March 9, 2 cases.

Iowa: Burlington, Feb. 1-28, 1 case.

Kansas: Kansas City, March 2-9, 1 case (imported).

Louisiana: New Orleans, Feb. 23-March 9, 40 cases, 1 death (11 cases imported).

Massachusetts: Chelsea, March 2-9, 1 case.

Michigan: Kalamazoo, Feb. 23-March 9, 3 cases.

Mississippi: Natchez, March 2-9, 2 cases.

Missouri: Jefferson City, Jan. 20-March 4, 46 cases; St. Joseph, Feb. 23-March 2, 20 cases; St. Louis, Feb. 23-March 9, 3 cases.

New York: New York, Feb. 23-March 2, 4 cases.

North Carolina: Charlotte, Feb. 23-March 2, 1 case.

Ohio: Columbus, Feb. 1-28, 1 case.

South Dakota: Sioux Falls, Feb. 23-March 9, 5 cases.

Texas: Galveston, March 1-8, 1 case; Hunt County, Jan. 1-March 8, 25 cases.

Washington: Spokane, Feb. 23-March 2, 18 cases.

Wisconsin: La Crosse, Feb. 23-March 2, 1 case; Milwaukee, Feb. 23-March 2, 8 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, Jan. 12-19, 4 cases (mild).

SMALLPOX—FOREIGN.

Algeria: Algiers, Feb. 16-23, 2 deaths.

Belgium: Brussels, Feb. 9-16, 2 deaths.

Ecuador: Guayaquil, Feb. 9-16, 3 deaths.

Egypt: Cairo, Jan. 14-28, 3 cases, 1 death.

France: Paris, Feb. 9-16, 13 cases.

Great Britain: Bristol, Feb. 9-23, 1 case, 1 death; Cardiff, Feb. 16-23, 2 cases; Dundee, 1 case; Glasgow, Feb. 22-March 1, 1 case; Manchester, Feb. 16-23, 1 case.

India: Bombay, Jan. 29-Feb. 12, 3 deaths; Calcutta, Jan. 19-26, 25 deaths; Madras, Feb. 2-9, 1 death.

Mexico: Aguas Calientes, Feb. 16-March 2, 8 deaths; Monterey, Feb. 17-24, 2 deaths; Nogales, Feb. 23-March 2, 1 case; Veracruz, Feb. 9-23, 3 cases, 2 deaths.

Russia: Moscow, Feb. 2-9, 4 cases, 2 deaths; Odessa, Feb. 9-16, 17 cases, 5 deaths; St. Petersburg, Feb. 2-9, 2 cases.

Spain: Madrid, Jan. 1-31, 1 death.

YELLOW FEVER.

Brazil: Rio de Janeiro, Jan. 27-Feb. 3, 1 case, 1 death.

Ecuador: Guayaquil, Feb. 9-16, 10 deaths.

CHOLERA—INSULAR.

Philippine Islands: Provinces: Capiz and Negros Occidental, Jan. 12-19, present.

CHOLERA—FOREIGN.

India: Bombay, Jan. 29-Feb. 5, 1 death; Calcutta, Jan. 19-26, 361 deaths; Madras, Jan. 26-Feb. 8, 4 deaths; Rangoon, Jan. 19-Feb. 2, 17 deaths.

PLAGUE.

Australia: Sydney, Jan. 5-12, 1 case.

Brazil: Rio de Janeiro, Jan. 20-Feb. 3, 34 cases, 14 deaths.

Chile: Antofagasta, Feb. 2-9, 12 cases, 4 deaths.

China: Hongkong, Jan. 19-26, 1 case, 1 death.

India: Bombay, Jan. 29-Feb. 12, 166 deaths; Calcutta, Jan. 19-26, 24 deaths; Rangoon, Jan. 19-Feb. 2, 80 deaths.

Peru: Catacaos, Jan. 27, 4 cases, 3 deaths; Chiclayo, 14 cases, 11 deaths; Lima, 6 cases, 3 deaths; Malabrigo, 20 cases; Pacasmayo and San Pedro, 12 cases, 4 deaths; Trujillo, 11 cases, 9 deaths; Viru, 9 deaths.

Marriages

BENJAMIN HOYT, M.D., Mellen, Wis., to Miss Maude Roethinger, formerly of Janesville, Wis., at Baraboo, Wis., March 2.

EDWARD QUARLES, M.D., Mount Savage, Md., to Mrs. Mary Downey Sheridan of Cumberland, Md., in Chicago, March 12.

VAL E. MILTENBERGER, M.D., St. Louis, to Miss Jean S. Rickey of Callaway County, Mo., at Jefferson City, March 6.

CHARLES E. STAFFORD, M.D., to Miss Mabel Sellon, both of Kemmerer, Wyo., recently.

FRANK E. ESTES, M.D., Denver, Colo., to Miss Ella Stogsdill of Golden, Colo., March 6.

Deaths

John Hill Brinton, M.D. Jefferson Medical College, Philadelphia, 1852; A.M. University of Pennsylvania, 1853, and LL.D. 1901; professor of practice of surgery and clinical surgery in Jefferson Medical College; brigade surgeon of volunteers throughout the Civil War; a member past or present of the Academy of Natural Science, Philadelphia; Philadelphia Pathological Society, American Medical Association, Philadelphia Academy of Surgery, American Surgical Society, and American Philosophical Society; the Mütter lecturer on surgery and pathology in 1869; surgeon to St. Joseph's Hospital, Philadelphia Hospital, and Jefferson Medical College Hospital; consulting surgeon to the Philadelphia Hospital, an eminent surgeon and teacher, died at his home in Philadelphia, March 18, aged 75.

Charles H. Jones, M.D. University of Minnesota, College of Medicine and Surgery, Minneapolis, 1890; a member of the American Medical Association; secretary and treasurer of the Territorial Medical Society of Arizona, and a member and later chairman of the Board of Medical Examiners; major and surgeon in the National Guard of the territory; for two terms secretary of the Tempe Normal School board, and one of the most esteemed practitioners and citizens of Arizona, died at his home in Tempe, March 7, from pneumonia, after an illness of one week, aged 41.

Henry Carroll Sutton, M.D. University of Marvland School of Medicine, Baltimore, 1880; of Rome, N. Y.; a member of the state and county medical societies; health officer of Rome for 20 years, and for three years a coroner of Oneida County, died at the De Soto Sanitarium, Jacksonville, Fla., March 5, from heart disease, after an illness of a year, aged 50. At a meeting of the physicians of Rome, March 6, resolutions laudatory of Dr. Sutton and regretting his death were unanimously adopted, and the physicians of the city decided to attend the funeral in a body.

Andrew Jackson Willard, M.D. Yale University, Medical Department, New Haven, 1877; for two years superintendent of public schools in Burlington, Vt.; instructor in chemistry and special professor of hygiene and sanitary science in the Medical Department of the University of Vermont until 1890, and for many years superintendent and resident physician of the Mary Fletcher Hospital in that city, died at the home of his son in Swanton, Vt., March 5, after an illness of three years, aged 74.

William B. Thomas, M.D. University of Buffalo (N. Y.) Medical Department, 1857; for nearly 50 years a practitioner of Ionia, Mich.; a veteran of the Civil War, in which he served as surgeon of the Twenty-first Michigan Volunteer Infantry; United States marshal for the Western District of Michigan in 1866, and five years later superintendent of schools for Ionia County, died at his home, March 5, after an invalidism of several years, due to a fall, aged 75.

George A. Peters, M.D. University of Toronto, Faculty of Medicine, 1886; F.R.C.S., Eng., 1890; professor of surgery and

clinical surgery in his alma mater; surgeon to the Toronto General Hospital and consulting surgeon to the Hospital for Sick Children; lieutenant-colonel in command of the Toronto Light Horse, which he organized; distinguished as a surgeon and teacher; died suddenly at his home in Toronto, March 13, from heart disease, aged 47.

Brigadier General **John Moore, M.D.**, Surgeon General, U. S. Army, retired; who entered the army as lieutenant and assistant surgeon in 1853, was made captain and assistant surgeon five years later, promoted to major and surgeon in 1862, to colonel and medical director of volunteers in 1865, to lieutenant colonel and assistant medical purveyor in 1883, and made surgeon general in 1886, and who was retired Aug. 16, 1890, by reason of age, died at his home in Washington, D. C., March 18, aged 81.

William **Baker Crain, M.D.** University of Pennsylvania, Department of Medicine, Philadelphia, 1860; assistant surgeon of the Twenty-second Pennsylvania Volunteer Cavalry and afterward major and surgeon of the Second Maryland Volunteer Infantry, and in charge of the United States military hospitals at Washington, D. C., and New Creek, Va., died at his home in Richfield Springs, N. Y., from heart disease, March 9, after a brief illness, aged 69.

David Bell **Kerr, M.D.** University of Virginia, Medical Department, Charlottesville, 1893; who entered the medical department of the United States Navy June 1, 1898, and was commissioned surgeon April 5, 1905; examining surgeon for the Naval Recruiting Station, Chicago; who had had a total sea service of 6 years and 5 months, died at his home in Chicago, March 19, from cirrhosis of the liver, after an illness of three months, aged 35.

Edward **W. McDonald, M.D.** New York University Medical College, New York City, 1871; a member of the state and county medical societies; the oldest practitioner on the staff of the Waterbury (Conn.) Hospital and first president of the Waterbury Celtic Medical Society, died at his home in Waterbury, March 12, from heart disease, after an illness of two weeks, aged 61.

William **J. Butler, M.D.** University of Pennsylvania, Department of Medicine, Philadelphia, 1885; resident physician of the Philadelphia City Hospital for five years and a member of the staff of Mercy Hospital, Wilkes Barre, died at his home in that city, March 4, two days after a railway accident, in which he was run down by a freight train, while making a professional call, aged 44.

Joseph **C. B. Ray, M.D.** University of Maryland School of Medicine, Baltimore, 1888; a member of the American Medical Association, and for a number of years a prominent practitioner of Owensboro, Ky., died March 5, from pneumonia, aged 50, at his home in Denver, where he had moved six years ago on account of ill health.

Van Lear **Perry, M.D.** Jefferson Medical College, Philadelphia, 1892; a member of the American Medical Association, and one of the best known practitioners of Prince George's County, Md., died at his home in Hyattville, March 8, from acute gastritis, after an illness of only a few hours, aged 38.

Charles **S. Helman, M.D.** Miami Medical College, Cincinnati, 1874; a member of the Kentucky State Medical Society, and treasurer of the Kenton and Campbell County Medical Association; local surgeon of the Queen & Crescent Route in Ludlow, Ky., died at his home, March 7, aged 54.

Alexander **Hill, M.D.** University of Maryland School of Medicine, Baltimore, 1874; formerly coroner of Baltimore County and physician to the Baltimore Fire Department, died at his home in that city March 15, three years after an operation for carcinoma of the tongue, aged 51.

George **Taylor Church, M.D.** Dartmouth Medical School, Hanover, N. H., 1894; sometime principal of the high school at Saratoga Springs, N. Y., and later superintendent of schools in that village, died suddenly at his office in Brooklyn, N. Y., March 10, from angina pectoris, aged 49.

Percival **R. Pine, M.D.** Bellevue Hospital Medical College, New York City, 1879; of Tipton, Iowa, who had been suffering from insomnia and despondency for about two years, died in his office in Tipton, March 1, as the result of a self-inflicted gunshot wound of the head.

Marshall **H. Waples, M.D.** Jefferson Medical College, Philadelphia, 1865; formerly physician of Dubuque County, Iowa, and a lifelong resident of Dubuque, died at the Stewart farm, near that city, March 6, after a prolonged illness, from cerebral hemorrhage, aged 65.

Joseph Wellington Mann, M.D. Cincinnati College of Medicine and Surgery, 1896; formerly a practitioner at Newtonville, Ohio, but for the last seven years a member of the staff of the Long View Hospital, Cincinnati, died at that institution February 23, aged 42.

Cass F. Chiler, M.D. College of Medicine, Syracuse (N. Y.) University, 1900; a member of the state and county medical societies, died suddenly at his home in Montezuma, N. Y., March 5, from morphin and atropin, self-administered, with suicidal intent, aged 33.

Robert M. Huntington, M.D. University of Missouri, Medical Department, Columbia, 1861; assistant surgeon in the United States service during the Civil War, died at his home in Hot Springs, Ark., March 7, from pneumonia, after an illness of one week, aged 75.

John S. Ormiston, M.D. University of Iowa College of Medicine, Iowa City, 1876; formerly a practitioner of Hartwick, Iowa, where he was postmaster until the spring of 1906, when he moved to Purcell, Mo., died at the latter place, February 24, aged 59.

Blair Hagerty, Jr., M.D. Bennett College of Eclectic Medicine and Surgery, Chicago, 1879; a member of the Ohio legislature in 1890, died at his home in Montpelier, Ohio, March 7, from cerebral hemorrhage, after a brief illness, aged 66.

David H. Shenk, M.D. Long Island College Hospital, Brooklyn, N. Y., 1874; a member of the state and county medical societies; for many years a practitioner of Lancaster, Pa., died at his home in that place, March 10, aged 55.

John Ward Steele, M.D. Jefferson Medical College, Philadelphia, 1902; of Dover, Del., died at St. Agnes' Hospital, Philadelphia, March 4, from peritonitis, three days after an operation for appendicitis, aged 30.

Frederick E. Schacht, M.D. College of Medicine and Surgery of the University of Minnesota, Minneapolis, 1903; of Burlington, Wash., died in Providence Hospital, Seattle, March 1, from acute nephritis, aged 30.

Benjamin F. Spencer, M.D. Medical College of Ohio, Medical Department, University of Cincinnati, 1860; died at his home in Newark, Ohio, March 10, after a short illness, from senile debility, aged 86.

Henry Clay Smith, M.D. University of Wooster, Medical Department, Cleveland, 1881; died at his home in Kent, Wash., February 22, from pneumonia, aged 50.

Daniel W. Cushman, M.D. Kentucky School of Medicine, Louisville, 1881; formerly of Cloverland, Ind., died at his home in Terre Haute, Ind., March 9, aged 52.

John D. Bryan, M.D. St. Louis (Mo.) Medical College, 1870; died at his home in Louisburg, Kan., February 19, after a short illness, aged 63.

Joseph E. Sansom, M.D. Rush Medical College, Chicago, 1878; died at his home in Tipton, Iowa, February 25, from diabetes, aged 55.

James J. Keane, M.D. Long Island College Hospital, Brooklyn, 1882; died at his home in New York City, March 2.

Edwin Smith, M.D. Pulte Medical College, Cincinnati, 1877; died at his home in Aurora, Ind., March 6, aged 74.

Deaths Abroad.

Allan Macfadyen, M.D. University of Edinburgh, 1886; an eminent bacteriologist, died at the age of 46, as the result of accidental infection with Malta fever. After graduation he studied abroad and worked in the laboratories of Berne, Gottingen and Munich. He played an active part in the foundation of the Lister Institute of Preventive Medicine and became its director in 1891. His most important scientific work was on the intracellular toxins. He developed an improved method for obtaining the cell plasma of pathogenic organisms, which consisted in triturating them while frozen to a brittle condition by means of liquid air. In this way he was able to obtain the contents of the ruptured cells unaffected by heat or other modifying agents, and was led to the conclusion that there are two kinds of bacterial toxins—those such as diphtheria and tetanus, which are extracellular and are secreted by the bacteria, and those which, like the toxins of typhoid and plague, are intracellular and are contained within the bacteria. Another interesting investigation made by him was on the resistance of bacteria to extreme cold. He exposed a series of bacteria to the temperature of liquid air. After twenty hours he could detect no impairment in their vitality; they grew and became active when restored to the ordinary temperature. The same result was obtained when the period of exposure was increased to seven days.

Book Notices

VOICE PRODUCTION IN SINGING AND SPEAKING, Based on Scientific Principles. By W. Mills, M.A., M.D., F.R.C.S., Professor of Physiology in McGill University and Lecturer on Vocal Physiology. Cloth. Pp. 282. Price, $2.00 net. Philadelphia: J. B. Lippincott Company, 1906.

This work contains many facts interesting to voice users. It is divided into nineteen methodically arranged chapters. The first chapters are devoted to educative methods in voice culture and their results, and to general physiologic considerations. It is stated that the "neuro-muscular system is of great moment to the voice user;" theoretically, it may be useful to recognize certain neuro-muscular mechanisms, but practically its application is questionable.

The anatomy of the air passages and the physiology of respiration are considered, and the action of the respiratory muscles and diaphragm is clearly detailed and illustrated. A few excellent practical rules are given regarding the use of the breath; for example: "All breath that does not become sound is wasted," and again, "all breath must produce effective vibration of the vocal cords, in right production of tone."

The author inveighs against the wearing of corsets and any compression of waist, chest and neck as being detrimental to proper breathing. A most sensible and practical hint is given for the proper use of the breath in the rule: "One should breathe through the nose when not using the voice, and through the mouth when one does."

There are also good hints as to methods of practice in right breathing. The author intimates that the undue emphasis some writers have laid on diaphragmatic breathing may be due to an effort to counteract the compressive effect of woman's dress. Since the voice user should have control of his whole breathing mechanism, a general adoption of vocal training, Mills asserts, might do much toward banishing the corset.

In considering the larynx or "voice box," the pupil is urged to become an intelligent student of his own vocal apparatus and to understand and manage it in the most physiologic and artistic manner. The physiology and anatomy of the larynx are described, but to the non-medical student the description is difficult of understanding, and possibly less detail might have been better.

A short comment on sound is followed by a study of the registers of the singing voice, and this is a most important chapter for singers. Changes in mechanism of the voice in different parts of the musical scale must be mastered by the vocalist, as it is dangerous to vocal welfare to carry a lower register too high, although a higher register may be carried lower without harm.

The resonance chambers are briefly described as a part of the vocal apparatus, and their influence in determining quality of tone is shown. The author believes that a respect for the beautiful in the speaking voice should be acquired young and notes the early age at which a large percentage of great singers began their training. He calls attention to the important changes which occur in voices at puberty and states at this time great damage may be done, especially to male voices, by improper use. Voice production, he declares, should begin with vowel sounds and not words; consonants are too complicated vocally. The best language to sing is Italian, because of abundance of vowels. English and German are relatively unmusical on account of the prevalence of consonants.

NERVOUS DISEASES, ORGANIC AND FUNCTIONAL. M. A. Starr, M.D., Ph.D., LL.D., Sc.D., Professor of Neurology, Medical Department of Columbia University in the City of New York. Second Edition. Thoroughly Revised. Cloth. Pp. 816. Illustrations, 308. Price, $6.00 net. Philadelphia: Lea Bros. & Co.

The first edition of this work was limited to organic diseases, while the present volume includes the neuroses. However, some affections ordinarily embraced in text-books on nervous diseases are omitted; thus diseases of the ductless glands and the so-called trophic disorders are not included. The parts of this work devoted to the anatomy and physiology of the nervous system are, as they should be, brief. The volume is a practical work by a practical, well-informed man. It is a trustworthy instructor for the student and a reliable and clearly written guide for the practitioner. Hypothesis and theory are never confused with fact nor the uncertain with the known.

The great bulk of the volume is devoted to organic diseases and this is the better part of the work. There are only 85 pages devoted to functional disease, and with 790 pages in the text, this means less than 11 per cent. assigned to all of the neuroses combined. Naturally, this limitation of space makes itself felt in the different chapters. For instance, less than five pages on such a common and distressing affection as migraine do not compare very well with the sixty pages on multiple neuritis. Those familiar with Starr's previous work will not be disappointed in the chapter on tumors of the brain. It consists of thirty-seven pages, and is a model of its kind. We can make but three trifling criticisms: According to the first table the percentage of operable tumors is 8 and not 10, as stated in the text; it seems that anosmia might have been mentioned as a localizing sign of frontal tumor; and the statement in the final paragraph that Horsley advocates passage of a drainage tube into the subdural space or ventricle for the palliative treatment of tumor is not accurate at this time.

One of the best chapters is that on the diagnosis and location of brain diseases. The idea of embracing these subjects in one chapter rather than under the head of the various affections of the brain, is an excellent one. This chapter is well illustrated and will be of great practical assistance to those not familiar with the subject. On the other hand, we doubt the wisdom of omitting a systematic consideration of syphilis of the nervous system. The chapter on this subject comprises only about two pages, simply enough to refer the reader to other parts of the book; for instance, that on brain tumor, the spastic paraplegias, bulbar paralysis, etc. It is true that the symptoms of no syphilitic disease of the nervous system are pathognomonic of its etiology, but none the less are there distinctive features of brain syphilis and cord syphilis. Besides, the frequency as well as the very diversity of the cases makes it imperative that they be well understood and early recognized. Tabes occupies forty-four pages, eight of these on treatment, and the chapter is satisfactory in every way. The suggestions regarding treatment are excellent, for, although the disease may be incurable, much may be done for those who suffer from it. Chapter XXIX is on general paresis, or dementia paralytica. While it properly ranks as a mental disease, it has much in common with other organic affections of the brain. Furthermore, it is not sufficiently well known to the general practitioner. On the whole, this work can be heartily recommended to both student and practitioner.

THE PRACTICE OF OBSTETRICS. By Eminent Authorities. Edited by Reuben Peterson, A.B., M.D., Professor of Obstetrics and Diseases of Women in the University of Michigan, Department of Medicine and Surgery, Ann Arbor, Mich. Octavo, about 1087 pages, with 553 illustrations, including 30 full-page colored plates. Cloth, $6.00 net. Philadelphia: Lea Brothers & Co., 1907.

This is the final volume of the Practitioners' Library. The profession now has at command in convenient form an authoritative exposition of the latest and best knowledge on three closely interrelated and important specialties. The basic subjects of applied pathology and etiology are considered with sufficient fulness to lay the foundation necessary for a fruitful understanding of the practical aspects to which major space is devoted. Each author has woven in his own observations of disease and the therapeutic measures which have resulted in the greatest success. This adds to each chapter a personal element of obvious value. In view of their particular importance in obstetrics, the series of illustrations has been made exceptionally rich, and it is likewise notable for being largely from original photographs taken from life, and a large proportion of them from Dr. Peterson's own service in the University of Michigan Maternity.

Like its companions, the volume on obstetrics is designed above all to be practical, but theory when it is the key to practice has not been neglected. Each contributor has developed his subject in accordance with his own experience, following, of course, a plan carefully designed to ensure completeness and uniformity of successive chapters and to cover the whole

domain of obstetrics adequately. The disadvantages of repetition and contradiction, which obtain in all text-books that are written by several authors, are less conspicuous than usual in the volume before us. The work on the breasts and nipples has been repeated three or four times and that on the bladder three times, and in one or two places contradictions are noted which will doubtless disappear in the next edition, an event that undoubtedly will soon be necessary. The advantages of the multiple authorship are conspicuous in the beautiful and masterly work which has been done by Huber, Warthin, Dorland, Lewis and Scuenk on physiology and pathology, extrauterine pregnancy and monstrosities. These chapters have never been excelled hitherto in similar works. Physiology of the puerperium has been excellently covered by Bacon and Lewis.

In the operative work, exception might be taken to the reference to the use of forceps in breech cases, since it is well established, as a rule of practice, that the forceps should not be applied to the breech of the living child. Mention of the use of reversed forceps could be omitted also, in our opinion, as a practice too unsettled and questionable to be advocated. The technic of vaginal Cesarean section has not been given in sufficient detail for an operation so comparatively recent.

In the pathology of pregnancy Nicholson is given credit for Lange's work on the thyroid, but the chapter as a whole is very satisfactory. There are some errors in proofreading, which will doubtless disappear in subsequent issues.

The work is well designed, well executed and undoubtedly will be appreciated. It is hardly necessary to say that the mechanical work has been done in the publishers' best style.

THE INTEGRATIVE ACTION OF THE NERVOUS SYSTEM. By C. S. Sherrington, D.Sc., Hon. LL.D., F.R.S., Holt Professor of Physiology in the University of Liverpool, etc. With Illustrations. Cloth. Pp. 411. Price, $3.50. New York: Charles Schribner's Sons, 1906.

The problem discussed in these lectures is the integrative action of the nervous system in building up the complex animal organism. The unit mechanism in integration by the nervous system, according to Dr. Sherrington, is the reflex, the conception of which embraces that of at least three separable structures—an effector organ, e. g., gland cells or muscle cells; a conducting nervous path or conductor leading to that organ; an initiating organ or receptor whence the reaction starts. It is by such structures and their combination and coördination, that the multicellular organism is built up from its component parts and becomes an individual instead of a mere jumble of commensual organs. The book is therefore a study of reflex action from this special point of view; the titles of the subject treated in the simple reflex, interaction between reflexes, compound reflexes and their simultaneous and successive combinations, reflexes as adapted reactions, some aspects of the reactions of the motor cortex, the physiological position and dominance of the brain, sensual fusion—give a slight idea of the line of argument followed, the details of which, however, must be followed out in the book itself. It is one that calls for careful reading, containing as it does a vast amount of physiologic information, and one also that deserves the attention of the physiologic student, as it contains much matter bearing more or less directly on psychologic questions, especially in the latter part of the book where the subject of volitional control of the reflexes is discussed. The author also touches directly on psychologic theory elsewhere, e. g., in his remarks on the Lange-Sergi-James theories of the emotions. The volume forms an excellent work of reference, not only as regards the physiology of the reflexes, but also as to certain questions taken up in the newer psychology. A bibliography of authorities referred to in the text, including over 300 titles and a very satisfactory index, complete the work.

A VICTORIOUS DEFEAT. The Story of a Franchise. By Charles Frederic Gilliam. Illustrated by Ted Ireland. Cloth. Pp. 371. Boston: The Roxburgh Publishing Company.

Although this is a story by a practicing physician of Columbus, Ohio, the author has avoided talking shop, as does the average doctor who for the first time essays light literature. There is nothing medical in the story, and the only thing in it of special interest to the doctor is the fact that a doctor wrote it. The hero is a young attorney, highminded, honorable, courageous, etc. He becomes interested in politics, takes up the people's side in some franchise question, and leads in a fight against a grasping street-car company. Love becomes sadly mixed with politics. The hero is in love with the only daughter of the leading lawyer of the town, whose enmity he gets first by opposing him for Congress and afterward by appearing on the other side in some important lawsuits. All this, however, because he can not do otherwise and remain true to his convictions. Most serious of all, however, is the fact that the old gentleman, secretly at first, but openly later, is working for the street-car company, in which he has invested all his savings. The young man wins out every time and finally is elected to Congress, with the help of the old gentleman, who, of course, becomes his father-in-law. The main interest of the story centers around the fight for civic righteousness, the hero being the leader in the reform movement. The story is captivating and with enough action and plot to hold one's interest without flagging. Above all, it is elevating and stimulating to better citizenship.

PULMONARY PHTHISIS; Its Diagnosis, Prognosis and Treatment. By H. H. Thomson, M.D., Visiting Physician to the Consumption Sanatorium of Scotland Bridge of Weir, N. B. Cloth. Pp. 188. Price, $2.00 net. New York: William Wood & Company.

In dedicating his book on "Pulmonary Phthisis" to the practicing physician, Thomson evidently recognized that it is not adapted to undergraduates. The facts apparently are all in, but lack systematic arrangement, the author failing to recognize the limitations of the various divisions of his subject with the consequence that one finds diagnosis, prognosis and treatment rather mixed. The book shows a wide and comprehensive view of the subject. The points made in diagnosis, prognosis and treatment are such as may be found in any comprehensive article on tuberculosis; there is a good chapter on specific treatment. Dr. Thomson finds himself rather at variance with the prevailing ideas of super-alimentation and does not recommend more nourishment than for a healthy individual of the same weight; otherwise he is orthodox. An appendix on "Tuberculosis in Childhood" is out of the ordinary and worth careful reading. The general tone of the work is good, the ideas being conservative and commanding respect on account of the author's extensive experience. Mechanically the book is good, the type and paper being especially easy on the eyes.

DISEASES OF THE STOMACH. A Text-Book for Practitioners and Students. By M. Einhorn, M.D., Professor of Clinical Medicine at the New York Post-Graduate Medical School and Hospital, etc. Fourth edition, revised. Cloth. Pp. 559. Price, $3.50 net. New York: William Wood & Company.

This edition, while retaining the original plan of the work, has been revised and brought down to date. The opening chapter deals briefly with the anatomy and physiology of the stomach. Methods of examination are gone over, a hundred pages of the book being devoted to this subject. The various test meals are given and their value and significance stated. A chapter is devoted to diet in diseases of the stomach and the great and growing importance attached to this means of treatment, both prophylactic and curative, is dwelt on. After dealing with the general means of local treatment in stomach diseases the various affections, both organic and functional, are taken up. The author speaks in no uncertain tone of the valuelessness of the so-called digestants and digestive ferments, for which so much is claimed by their manufacturers. "I have entirely abandoned the use of pepsin," he says, "and greatly restricted the administration of hydrochloric acid." In the final chapter the condition of the stomach in diseases of other organs is briefly considered. The work is to be commended to both students and practitioners.

HYGIENE AND PUBLIC HEALTH. By B. A. Whitelegge, C.B., and G. Newman. Illustrated. Cloth. Pp. 606. Price, $1.75 net. Chicago: W. T. Keener & Co., 1905.

This manual for health officers has been a standard for many years in Great Britain. It presents a concise summary of the present position of public-health administration with a full description of the duties of municipal health officers.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Atlantic City, June 4-7.

American Association of Anatomists, Madison, Wis., March 27-29.
Med. Assn. of District of Columbia, Washington, April 2.
Tennessee State Medical Assn., Nashville, April 9.
Mississippi State Medical Association, Gulfport, April 10.
South Carolina Medical Association, Bennettsville, April 10.
Medical Assn. of State of Alabama, Mobile, April 16.
Florida Medical Association, Tampa, April 17.
Med. Soc. of the State of California, Del Monte, April 16-18.
Medical Association of Georgia, Savannah, April 17.
Medical and Chir. Faculty of Maryland, Baltimore, April 23-25.
Association of American Medical Colleges, Washington, May 6.
American Therapeutic Society, Washington, May 4-7.
Amer. Assn. of Genito-Urinary Surgeons, Washington, May 7-9.
Am. Assn. of Pathologists and Bacteriologists, Washington, May 7-9.
American Climatological Association, Washington, May 7-9.
American Gynecological Society, Washington, May 7-9.
Amer. Laryngological Association, Washington, May 7-9.
Amer. Medico-Psychological Association, Washington, May 7-9.
American Ophthalmlogical Society, Washington, May 7-9.
American Orthopedic Society, Washington, May 7-9
American Pediatric Society, Washington, May 7-9.
American Assn. of Physicians, Washington, May 7-9.
American Surgical Association, Washington, May 7-9.
Nebraska State Medical Association, Lincoln, May 7-9.
New Mexico Medical Association, Las Cruces, May 8-9.
Texas State Medical Association, Mineral Wells, May 7.
Utah State Medical Association, Salt Lake City, May 7-8.
Kansas Medical Society, Kansas City, May 8-10.

NEW YORK ACADEMY OF MEDICINE.

Regular Meeting, held Feb. 21, 1907.

DR. ROBERT ABBE in the Chair.

Nitrogenous Metabolism in Typhoid Fever.

DR. JAMES EWING presented the analysis of 17 cases, and the most obvious interest is in the relation of the urinary nitrogen and its partition to the clinical symptoms. The records show a total urinary nitrogen excretion reaching 27.40 grms. on the thirteenth day of a moderately severe case, but averaging considerably below 20 grms. With a restricted milk diet, this large percentage of nitrogen must signify consumption of tissue proteids and a marked loss of nitrogen on balance. The total nitrogen varied with the temperature and diminished with defervescence when nitrogen retention began. The more favorable the condition, the higher the percentage of urea nitrogen. A ratio below 70 per cent. seems to indicate a grave condition; sharp increase in this ratio is a very favorable sign; a rapid decrease is followed shortly by the death of some patients. In some instances the urea ratio seemed to be a better index of the patient's condition than were the temperature and pulse. In two fatal cases the ammonia ratio reached 9 per cent. and 10 per cent., and in one fleshy woman it was found at 11 per cent. The present indications are not that acidosis is a prominent feature of typhoid fever. The acetone bodies are not estimated in this series. A fall in the urea nitrogen is regularly accompanied by a corresponding rise in the rest-nitrogen. In two cases a sudden rise in the rest-nitrogen with a fall in the urea preceded albuminuria.

Among the interesting clinical points are the following: Urea ratios below 70 per cent. and rest-nitrogen above 15 per cent. belong to the severer stages and types of the disease. Rapid falls in urea with rises in rest-nitrogen occur at unfavorable times in the disease. The ammonia nitrogen tends to run comparatively low, but in fatty subjects, severe cases, or before death, it may rise to 10 per cent. or more of the total nitrogen. The character of the nitrogen partition in typhoid fever seems to show some dependence on or relation to the lesions in the liver. In typhoid fever the liver, as a rule, shows some intense granular degeneration and usually focal necroses. Fatty degeneration is not prominent. If the final synthesis of urea is largely a function of the liver, the severe damage to the liver may be expected to yield for a time a low percentage of urea in a high total nitrogen output. The absence of extreme acidosis in typhoid fever accords with the usual condition of the typhoid liver. The changes in the urine in fatal typhoid fever are very similar to those in acute yellow atrophy, and the occurrence of acute yellow atrophy as a termination of typhoid fever is not extremely rare. The results show that the disturbance of nitrogenous metabolism is very similar to that of other infections, and in some intoxications which are not of bacterial origin.

The conclusion is reached that in typhoid fever and other infectious diseases, an important part of the morbid process consists in a disturbance of nitrogenous metabolism, which is very similar in type to that seen in pure autointoxications, and which, therefore, is not directly connected with the toxins of the invading bacteria. What is seen in typhoid fever is not merely the entrance and destructive effect of the typhoid endotoxins, but the burning of 30 pounds of tissue proteid in three weeks. Hence, in studying the nitrogenous metabolism, they are obtaining information about one of the fundamental processes going on in the diseased organism.

DISCUSSION.

DR. C. G. L. WOLF emphasized the importance of having a complete twenty-four-hour specimen of urine, and insisted that the patient should be placed on an accurate standard diet, of which the nitrogen content and the calorific value are accurately known. The diet should be free from purin compounds. A very careful clinical daily report would help to clear up many of the metabolic vagaries which are encountered in the examination of urines of this type.

The Management of the Intestinal Tract in Typhoid Fever.

DR. WALTER B. JAMES considered a few principles underlying the general treatment of the digestive tract in typhoid fever. He said that the intelligent energy of the physician finds ample opportunity for exercise in these fields, in the feeding, the nursing, the general management and the treatment of complications of this disease, and they are little able to shorten the course, or even to modify its character.

DISCUSSION.

DR. GEORGE L. PEABODY said that it has often happened to him to have brought under his care patients who have been under no medical care at all, but only under that of relatives or friends, and the stomachs of these patients had been rendered irritable by bad feeding, obstinate vomiting being an early symptom. Under these circumstances he insists on rest, with counter-irritation to the epigastrium. If vomiting persists, he advises against temporizing longer, but resorts to lavage. A patient weighing 120 pounds should receive 1,925 calories a day during health; but when there is increased activity and increased metabolism, more should be given. Milk alone is not a suitiable diet, because too much would be required, five or six pints a day. The number of calories can be greatly increased by giving alcohol in some form. Eggs are of material aid. He uses various modifications of milk, such as kumis or matzöon. Clear soups are given throughout the disease. Water should be given in abundance. Whenever the patient becomes hungry, he gives him solid food. He gives ice cream in all stages of the disease. Constipation is not evidence of absence of ulceration, nor is diarrhea evidence of the presence of it. He has never known a case of perforation to be caused by the giving of cathartics. He disregards diarrhea, unless the movements exceed two or three a day. If necessary to check it, he gives bismuth or the aqueous extract of opium. Meteorism he treats with the rectal tube of small size; he also believes in the use of turpentine, 10 minims every three hours. Turpentine stupes are not of much value. Surgery is of no avail in intestinal hemorrhage; but in intestinal perforation, nothing but surgery will avail.

DR. W. GILMAN THOMPSON said that the earlier text-books have spoken so much of "gurgling and tenderness in the right iliac fossa," and it is a very striking fact that this pair of symptoms has practically gone out of date, probably due to improved methods of feeding. The more one sees of typhoid fever the more he becomes convinced that a great deal of latitude should be allowed in its treatment. It is wonderful what a high degree of toleration the human subject has for typhoid fever. Of late years he has been treating patients more liberally in regard to diet. He gives a milk diet so long as it agrees. He gives liberally beef and orange juices. There is

nothing in the name "intestinal antiseptics," but there is in intestinal antifermentatives. He gives salol and creosote in coated pills, which dissolve only in the intestine, and this aids greatly in keeping down meteorism. If the stools become foul and offensive, and there is a tendency to tympanitis, the lower bowel should be cleansed. He believes in giving turpentine externally as well as internally. Ten per cent. of typhoid fever patients would have relapses no matter what the diet is.

Treatment of Typhoid Spine.

DR. VIRGIL P. GIBNEY said that the term typhoid spine carries with it no pathologic commitment. For a long time certain spinal phenomena have been observed in connection with typhoid fever, but no attempt has been made to embody these phenomena in an entity. A periostitis of the vertebræ naturally suggests involvement of the articular borders and the foramina of exit of the nerves, and the many cases already on record of bony enlargement are confirmatory of the theory first advanced as the primary pathologic lesion. It seems pretty well established by the number of cases recorded that trauma plays a very important factor in the etiology.

Dr. Gibney claims to have had fairly good results in a reasonable length of time by resorting to fixation of the column, the avoidance of trauma, the free use of the Paquelin cautery, and the subsequent employment of well-directed massage and graded exercises. The cautery as a counter-irritant has proved so valuable in his hands that he feels justified in recommending it above all other counter-irritants. The simple Knight spinal brace or the posterior spinal assistant of Taylor has proved of more value than the plaster-of-Paris jacket or corset. The criss-cross strapping with zinc-oxid adhesive plaster has been a valuable adjunct, especially in the milder forms of the disease. Potassium iodid has been given in certain cases, but not with any definite results. Where deformity exists it is necessary to wear apparatus for longer periods. In spinal lesions it is important to immobilize not only the parts involved, but those contiguous, and to get an accurate adjustment of the immobilizing apparatus. In the very acute cases it is sometimes necessary to supplement this fixation by means of rubber adhesive plaster, criss-cross strips, from one inch to two inches in width, and half encircling the body. It is important to remember that the apparatus must be worn for months in the average case. The object of the apparatus is to prevent trauma. The Paquelin cautery is insisted on as a regular line of treatment as long as tenderness and pain on movement exist. Even after all tenderness has subsided, it is a good plan to employ the cautery occasionally, say once a week or once in a fortnight.

It has been shown that even these deformities and areas of infiltration, bony or muscular, disappear after a while, and fortified by this assurance, the surgeon should decide when to begin the convalescing part of the treatment, namely, douches, hot baths and systematic, graded exercises, the object of which is to correct the stiffness developed in the muscles which have been for a time out of commission and to restore the tone generally to the spinal column. Anodynes and hypnotics are often necessary, and even at times the administration of chloroform. He could not recall an instance of a drug habit having been acquired. The administration of hypnotics must be left to the individual practitioner, with the suggestion that if the aforesaid treatment by fixation and cauterization is carried out, that hypnotics will not be in great demand.

DISCUSSION.

DR. HALSTED MYERS found that out of 500 cases of typhoid fever at St. Luke's Hospital, not one case of typhoid spine has been recorded. There have been cases of periostitis, but in other situations.

DR. LEONARD W. ELY said that typhoid spine always ends in absolute recovery, and he invariably tells his patients that they will be well in from one year to eighteen months. Nobody now agrees with Dr. Osler's statement that the disease is a neurosis. There is almost always a history of trauma. Rest in bed, counter-irritation and later on the jacket or brace make up the treatment. The pain sometimes is so acute as to demand the use of morphin, and even anesthetics.

BOSTON MEDICAL LIBRARY MEETING.

Held Feb. 6, 1907.

DR. RICHARD C. CABOT in the Chair.

Epidemic Uncinariasis in Porto Rico.

DR. BAILEY K. ASHFORD, assistant surgeon, U. S. A., spoke on the campaign now in progress against this disease. It is a social and economic problem and not merely a medical one, for more than 750,000 of the Porto Ricans are infected and 70 per cent. of the inhabitants are suffering from its effects. Of 600 blood examination made none gave a hemoglobin percentage of over 40 to 45 per cent. From 5,000 to 7,000 deaths result there from this disease each year, or, in other words, it is responsible for 20 to 25 per cent. of all the deaths on the island. Its mode of entrance into the system and progress and development therein are well defined. The larvæ, present in the mud, penetrate the skin of the bare feet of the laborers, enter the veins, pass to the heart and through the pulmonary artery to the lungs. Here they break through the walls of the alveoli, enter the bronchioles, pass up the bronchi and trachea, are coughed up and swallowed, pass through the esophagus and stomach and arrive finally at their proper habitat, the jejunum, where they become attached and develop. This is practically the only way of infection. Almost no case studied could be traced to ingestion, and inhalation is not possible for the larvæ die when dried. Ninety-six per cent. of the thousands of cases treated have acknowledged previous or present suffering from ground itch, which is uncinarial dermatitis. This is almost unknown among those who wear shoes, hence a sure though slow way of eliminating the disease is found in wearing shoes. The guinea-pig is susceptible and experiments made with this animal substantiate many of the above statements.

The anemia is due probably to hemolysis, the cause for this being some substance not yet determined, secreted by the hook-worms. It certainly is not due to blood abstracted by the worm, for a bloody stool is almost unknown in these cases. In only five cases in 10,000 can blood be detected in the stools microscopically. Of all the cases examined postmortem only one showed a small ecchymosis in the jejunum, this same case showing minute red points when held in the proper light, and was not treated by an anthelmintic. Moreover, the worm is not a blood sucker and, therefore, could not thus cause the anemia. His food is epithelial cells and not red blood corpuscles. This comes from the superficial layers. The submucosa is not eroded. Some 80,000 worms have been counted by this U. S. A. commission, of which Dr. Ashford was a member, and none of them appeared to contain blood; but, on the contrary, they were grayish white, easily picked out as they were washed over a black background. This same truth has been proven by Leichenstern in regard to the ankylostomata, long considered blood suckers.

Much study has been given to the kidneys and the urine, but rarely has it been complete, because patients when somewhat relieved of their symptoms, wished to leave the hospital and return to work. Moreover, 24-hour movements were impracticable when active purging formed part of the treatment. However, 24 cases were pretty thoroughly studied both before and after the administration of the anthelmintic. Albumin was sought by three tests; boiling with acetic acid, the ferrocyanid test and Heller's nitric acid test. Sediment was allowed to settle and not centrifugated. Reaction was acid always; specific gravity low; sugar absent; no diazo, except after B.-naphthol, when it was always present; rarely any biliary acids; indican increased; urobilin present; 20 of the 24 before the administration of the anthelmintic showed a small trace of albumin. In 16 it was very small. Fifteen of these showed an increase in the amount of albumin after treatment was begun. Those who expelled most uncinaria had least increase in this albumin. The sediment showed casts, mostly small hyaline and granular. No blood casts. Few epithelial casts; 18 of the 24 had casts. The average hemoglobin content of these 24 cases were 46 per cent. Hence, he believes that albumin and casts must be considered a common event in this dis-

ease. They are evidences of degeneration rather than inflammation. Thymol and B.-naphthol are irritants to the kidneys and cause a temporary but not at all serious increase of these evidences in the urine. Both these drugs may, however, set up a severe nephritis. B.-naphthol is more irritant to the kidneys, but less depressant to the heart than thymol. The albumin is not dependent on the anemia, probably. Uremia is very rare in Porto Rico. B.-naphthol should be given only to selected cases and few doses.

The insular government is doing everything possible, but must continue its work for a long time. The physicians of the island are equipping themselves with microscopes and laboratory materials and are doing good work. There should be more public laboratory privileges.

THE MEDICAL JURISPRUDENCE SOCIETY OF PHILADELPHIA.

Regular Meeting, held Feb. 18, 1907.

The President, ADOLPH EICHHOLZ, ESQ., in the Chair.

Some Medicolegal Aspects of Abortion.

DR. HENRY W. CATTELL referred first to the historical side of abortion and quoted interesting data in regard to the Code of Hammurabi, and the opinions of the ancient law-givers in regard to this subject. He then discussed the present views held on the permissibility of ever performing the operation, and cited the extreme views taken by certain members of the Roman Catholic Church that under no circumstances, even when the case is due to the rupture of an extrauterine sac, should an operation be performed in order to save the life of the mother. Dr. Cattell said that there is no law in the State of Pennsylvania which prevents anyone from offering to perform and making all the arrangements for such a criminal operation. It is only when an individual is arrested in the act, or had performed the operation that legal proceedings can be instituted. At the present time there is a bill before the Pennsylvania legislature authorizing the medical examining board to revoke the license of any physician by due process of law for performing a criminal operation.

DISCUSSION.

WILLIAM DRAYTON, ESQ., inquired whether it would not be possible in every case of necessary abortion to have present at least three of the medical profession. This would remove from miscarriage the element of secrecy which the two professions are anxious to avoid.

DR. HENRY BEATES, JR., said that when in his practice it was necessary to bring on premature birth he notified the coroner and summoned for conference three reputable physicians.

DR. THOMAS H. FENTON thought that if there could be a more clearly expressed statute on abortion than that at present in vogue and which would include the giving of testimony, it would be of great value not only in saving misrepresentation, but in uncovering the men really at fault.

WILLIAM W. SMITHERS, ESQ., said that the language of a penal statute is taken for the greatest benefit to the man accused, and that the burden is on the state to prove that he comes within it; therefore, if the language is vague, the accused escapes. The clause in the statute regarding abortion is verbose and confusing, and could well be displaced by some such wording as the following: Whoever shall by any means whatsoever commit, bring about or attempt to commit or bring about an unlawful abortion, or whoever may aid or abet in such abortion, or bringing about of such an abortion, shall be guilty of a felony.

Laws of the Ancient Hebrews Concerning Medical Subjects.

DR. W. S. WADSWORTH confined his paper to the Mosaic code as found in the Bible, claiming that the code deserved the most careful study, not only because of its historic interest, but because of its provisions which in not a few particulars are ahead of the most advanced practice in sanitary matters at the present time. An attempt was made to grasp the conditions existing at the time the code was made with a biologist's grasp of the significance of the regulations. The idea was strongly brought out that the laws were taught for the express purpose of keeping the camp clean and the people clean in the sight of their God and that the ceremonialism was only a late degeneration when principles had been confused or had disappeared.

The law taught three great groups of duties (a) to God; (b) to the family; (c) to the brethren. The following seven groups of sanitary rules the author said could be found: 1. The family and all sexual matters. 2. Eating; what is clean and what is unclean. 3. Diseases. Chiefly leprosies and issues. 4. Purifications; isolations, examinations and washings. 5. The dead and other unclean matter. 6. Priestcraft, the only profession recognized. 7. The seventh day for rest and recovery of normal.

Almost every one of the rules would work directly for the physical betterment of the race. The food regulations would probably improve the health of any community, though intended specially for dwellers in a warm country. The subject of leprosies in persons, houses, clothing, etc., was shown to be somewhat vague, but was extremely radical race surgery and probably most beneficial. Concerning issues, the old law of isolation was said to be still ahead of most modern practice. The physical, sexual and moral cleanness enjoined, with the other rules, account for the physicial endurance of the race. The regulation regarding the Sabbath is in large measure responsible for the retention of that mental elasticity throughout the ages that has enabled the Jews of all times to be citizens of the world in a way not known to any other race.

DISCUSSION.

DR. HENRY LEFFMANN accepted Dr. Wadsworth's views on many of the points, although he had often thought that the value and practical results of the Levitical laws had been overrated. He asked for further authority for two statements made by Dr. Wadsworth: (1) Regarding the author's cavalier condemnation of the wine of the Jews. It might, perhaps, be assumed, he thought, that they did not possess the variety of quality that is now available; but he finds no reason in the recollection of his own reading that would justify the decision that their wines were unusually bad. In the second place, he was unaware of any basis for Dr. Wadsworth's statement that the birth of a female child is evidence of a debilitated condition of the mother. Though not having read much recently in this department of biology, he thinks that the trend of opinion among students of sex determination is just the reverse, namely, that male births are evidence of a falling off in maternal condition. He said that many of the Levitical rules are ceremonial in significance; others are based on the experience of the Jews or of the surrounding nations.

WILLIAM DRAYTON, ESQ., inquired the author's opinion of the abandoning of the study of anatomy and the punishment of the anatomists in the middle ages; also, whether dead bodies, under the law, were buried or burned.

ADOLPH EICHHOLZ, ESQ., inclined to the belief that the notion that many of the observances mentioned were ceremonial, was not founded on fact. The monotheistic idea originally held by the Jews is not the monotheistic idea of the present. When they speak of their God, there is always a concession that other nations should have their gods. The laws which are laid down for one nation become the religion of that nation and are not purely ceremonial. The only slum dwellers who have baths are the Jews. In regard to their dietary laws, they are regulated by a law preventing overindulgence, and this law is sacred to the Jew. Very few drunkards have been found among the Jews. Except for the nervous condition of the Jews, due probably to the terrible strain under which they have lived since the middle ages, they are, as a rule, a healthy race.

DR. WADSWORTH referred to the kind of grapes the wine was made of, to the vessels for holding it and other reasons which argued that perhaps 10 per cent. of it was bad. With reference to the disposition of dead bodies, he thought the evidence was toward burial rather than burning. Further reference was made to the ceremonialism, which later had crept into the code, and which did not possess the vitality of the magnificent old law itself.

Therapeutics

Hyperidrosis.

Internal treatment suitable to the general condition should be instituted. When the sweating is confined to the axilla local measures are likely to be of most benefit. Crocker ("Diseases of the Skin," third edition), recommends sulphur internally. Local cleansing of the skin is of first importance, and this is usually followed by application of some lotion supposed to exert an antihidrotic action. After the lotion has had opportunity to take effect the skin should be covered with a dusting powder. After the treatment is begun it will be best not to wash the skin, but simply to dry it with the dusting powder. Belladonna, in tincture, liniment or ointment, is recommended with a view to suppressing the secretions. Astringents are also used for the same purpose; these may consist of zinc sulphate, tannic acid or alum, 0.4 to 6 per cent. (2 to 30 grains to the ounce), in water. The dusting powder may consist of boric acid with from 1 to 6 per cent. (5 to 30 grains to the ounce) of salicylic acid. Stelwagon ("Diseases of the Skin"), recommends 1 per cent. solution of liquor formaldehydi as a cleansing lotion with the cautious use of stronger lotions for therapeutic purposes.

Gerdeck recommends for the soles of the feet a 3 per cent. solution of liquor formaldehydi. This might be too strong for the axillæ. Weiss, in THE JOURNAL A. M. A., Aug. 6, 1904, page 372, cautions against its use for the feet in greater strength than a 5 per cent. solution. He recommends the use of potassium permanganate according to the following plan, which would probably be also applicable to the axilla.

A cleansing bath is first applied, followed by the removal of epidermal débris by the use of a pledget of cotton soaked in benzin. This is followed by a 15 minutes' application of a 1 per cent. solution (5 grains to the ounce) of potassium permanganate in water. Next morning the foot (or axilla) is dusted with the following powder:

R.	Potassii permanganitis	3iii	12
	Aluminis	gr. xv	1
	Talci	3viiss	30
	Zinci oxidi	3ix	35
M.	Ft. pulvis.		

The baths are repeated each evening and the strength of the potassium permanganate solution is increased to 2 per cent. after the third bath, to 3 per cent. at the beginning of the second week, and finally to 6 per cent.

Unna recommends (*N. Y. Med. Jour.*, 1905), washing the affected parts with spirits of camphor or with a weak solution of vinegar, and following this with a local application similar to the following:

R.	Ichthyoli		
	Spiritus terebinthinæ, āā	3v	20
	Ung. zinci oxidi	3x	40
M.	Ft. unguentum. Sig.: Apply locally on retiring.		

Half a teaspoonful of the following may be rubbed into the hands (or axilla) after washing:

R.	Tincturæ belladonnæ	3iv	15
	Spiritus odorati, N. F.	3xxiv	95
M.			

Brocq recommends (*Archives de Méd. et Chir.*, 1905), insoles of filter paper, linen or cork saturated with the following mixture, allowed to dry, inserted into the shoes and changed daily. Similar pads might be put inside the dress shield:

R.	Potassii permanganitis	gr. xv	1
	Thymolis	gr. viii	5
	Aquæ	3xxv	100
M.			

The following special lotions and dusting powders have also been recommended:

LOTIONS.

R.	Naphtholis	3i	4
	Glycerini	3ii	8
	Alcoholis	3xx	80
M.			

R.	Tincturæ ferri chloridi	3viiss	30
	Glycerini	3iiss	10
M.			
R.	Quininæ sulphatis	gr. lxxv	5
	Acidi tannici	gr. xxx	2
	Alcoholis	3iii	90
	Aquæ	3viii	240
M.	Ft. lotio.		
R.	Beta-naphthol	3iiss	10
	Spiritus odorati (N. F.)	3iv	15
	Alcoholis	3vi	180
M.	Sig.: Use as a wash.		

DUSTING POWDERS.

R.	Pulv. sinapis	3i	4
	Pulv. talci	3iv	120
M.	Ft. pulvis. Sig.: To be dusted in the shoes.		
R.	Beta-naphthol	gr. xv	1
	Pulv. amyli	3ii	60
M.	Ft. pulvis.		
R.	Pulv. talci	3i	30
	Bismuthi subnitratis	3i 1/3	40
	Potassii permanganatis	gr. xlv	3
	Sodii salicylatis	gr. xxx	2
	Pulv. amyli	3ii	60
M.	Ft. pulvis.		
R.	Acidi salicylici	gr. xlv	3
	Pulv. amyli	3iiss	10
	Pulv. talci	3iii	90
	Pulv. aluminis	3iss	45
M.	Ft. pulvis.		
R.	Acidi salicylici	gr. xlv	3
	Pulv. amyl	3vi	25
	Beta-naphthol		
	Sodii boratis, āā	3iiss	10
	Sodii chloridi	3vi	25
M.	Sig.: Apply locally.		

The *x*-ray is said to have been used with benefit.

CONSTITUTIONAL TREATMENT.

Most cases of excessive sweating from the axilla are of a local nature and require little if any constitutional treatment, but the general condition should be investigated in all cases and obvious departures from the normal corrected.

Digestive disturbances may require attention and the mineral acids and stomachic bitters are often useful. Disturbance of the intestinal functions may influence the sympathetic nerve and it may be by regulating the bowels that sulphur, which is highly extolled by Crocker, acts. He recommends a level teaspoonful of precipitated sulphur in milk twice a day; if this causes too much purging it may be combined with astringents, as in the following:

R.	Pulveris cretæ co.	3vi	24
	Pulveris aromatici	3ii	8
	Sulphuris precipitati	3i	30
M.	Sig.: A teaspoonful twice daily.		

General tonics are often required and benefit is often obtained from full doses of quinin. It is doubtful if much effect can be expected from astringents administered internally, but sulphuric acid has been recommended.

Ergot also is sometimes effective. The most important remedies are those which affect the sympathetic nervous system which undoubtedly controls the production of the perspiration. The chief of these is belladonna or atropin 0.0004 gm., increased to 0.001 gm. (gr. 1/150 to 1/60).

In some cases sweating is due to depression of the respiratory center and in these cases remedies which act as respiratory stimulants such as camphoric acid 1.5 gm. to 2 gm. (gr. xxii to xxx), or menthol 0.1 gm. (gr. 1½) may be tried.

Sage, which has a domestic reputation as a remedy for sweating, may be given in an infusion made from 3.5 gm. (gr. 1) of sage to 500 c.c. (one pint) of hot water, of which a cupful may be taken three times a day (Crocker).

Acne.

John V. Shoemaker states, in the *Medical Bulletin*, that although acne is one of the most obstinate and relapsing affec-

tions, it can be either limited or cured by remedies, or may terminate spontaneously after the individual has passed the age of puberty and the system is in a state of repose. Among the various internal causes of this disturbance he mentions debilitating conditions and disorders of organs or portions of the economy which have a reflex action on the face, such as gastrointestinal disorders, anemia and uterine diseases. Menstrual irregularities and mental troubles also excite and aggravate acne.

For a patient with a tuberculous diathesis, and who is anemic and complaining of gastrointestinal disturbances, Shoemaker recommends the following mixture to be taken internally:

R.	Liquoris acidi arsenosi.....m. iii		18
	Strychninæ sulphatis.....gr. 1/60		001
	Acidi hydrochlorici dil.....m. x		60
	Glycerini pepsini (N. F.).....f3ii	8	

M. Sig.: Two teaspoonfuls in water after each meal.

As regards external treatment, hot wet towels are placed on the face for a few minutes at a time twice daily, followed by light massage of the face and application of the following ointment:

R.	Sulphuris sublimati.....gr. xx	1	30
	Creosoti .....m. xv	1	
	Unguenti zinci oxidi		
	Unguenti aquæ rosæ, āā.....3ss	2	

M. et ft. unguentum. Sig.: Rub in well night and morning.

Hygienic measures are of the utmost importance in acne, and especially in scrofulous subjects. Frequent bathing of the body is essential to promote a more healthy and vigorous action of the skin. If the patient can bear cold douching over the body, or a cold sponge, it should be employed daily. Fresh air and sunlight are necessary to these patients, but the most important item of all is proper food. Food that is indigestible and unwholesome, such as pastries, jams, sweetmeats, pickles and cheese, should always be avoided. Only plain, well cooked, nutritious foods should be taken.

Pepsin in Alkali Pills.

In reply to a correspondent who asks if the addition of pepsin would be permissible in a prescription like the following:

R.	Olei santali		
	Olei copaibæ		
	Olei cubebæ, āā.....3ii	8	
	Magnesii oxidi q. s.		

Ft. pil. No. lx.

the *Druggists Circular* states that pepsin is rendered inert by alkalies, even so weak an alkali as magnesium oxid. Consequently it is a waste of good pepsin to add it to such a mixture. A different excipient might be used which would permit its addition. The *Druggists Circular* states that wheat flour is a much better excipient than magnesia for the oils, that a combination of wax and flour is still better, and that with either of these the pepsin might be advantageously used.

Medicolegal

Pregnancy and Life Insurance.

The Supreme Court of Nebraska holds, in the case of Merriam vs. Grand Lodge Degree of Honor, that where a married woman is the holder of a policy of life insurance, it is not a false representation for her to sign a certificate, when she is pregnant, stating that she is in sound bodily health, if the certificate is otherwise true. Also, that where a married woman is an applicant for life insurance in a company that issues policies on the lives of married women, she is not required to inform the company of evidence of pregnancy discovered subsequently to her physical examination and application. The Supreme Court Commissioners say in the case that it will not do, in sound morals, for an insurance company to issue risks on the lives of married women between the ages of 18 and 45 years, without anticipating the probability of the holders of such policies obeying the divine mandate to be fruitful and multiply and replenish the earth, and a condition, either in the by-laws, articles of association, or certificate of benefit, providing for a forfeiture in the event that the holder should become pregnant at any time, would be clearly void, as against the highest principles of religion, morality and common decency. Consequently, when an application is made and approved, there is no duty on the holder of the certificate issued on such application to notify the company of any subsequently discovered evidence of pregnancy; nor would the fact, if subsequently discovered, prevent her from certifying that she was in sound bodily health, if such certificate is otherwise true.

Physician Lacking Experience Still an Expert.

The Supreme Court of Oregon says that in the homicide case of State vs. Megorden a physician called in behalf of the state testified that he was a regularly graduated, licensed and practicing physician, residing at Ontario, Ore., and had been practicing five years. He was then asked what the effect of a blow on a person's head, describing it as detailed by two preceding witnesses, would have as to dazing or confusing the person, and answered that it would affect his reasoning faculties for a few moments. Before answering, the witness stated that he had never seen or had a case so struck in that place. An objection to the question on the ground that the witness was not qualified as an expert was overruled. The point raised by this exception was whether or not want of experience in exactly such a case as the one in question is sufficient to disqualify a practicing physician and surgeon of general experience in his profession. Rogers on Expert Testimony, chapter 52, says: "If the witness is a physician or surgeon, he is not incompetent to express an opinion, because of his want of observation of any case like the one in question. . . . It is not necessary, to qualify a medical witness to testify as an expert on the subject of wounds, that he should have actually seen the wound in question. His testimony may be based on a description of a wound given in court by those who saw it." The want of experience or knowledge of the particular wound in question would not affect the competency of the witness if otherwise qualified, but might lessen the weight given to his testimony. In People vs. Thacker, 108 Mich. 652-660, it was held that a practicing physician, a graduate of a college of medicine and surgery, and duly licensed to practice, could testify regarding a case of poisoning, although it did not appear that he had ever treated a person who had been poisoned or seen one treated by other physicians. The court therein quoted with approval from Rogers on Expert Testimony, page 45, as follows: "A witness, otherwise qualified, may express an opinion on a matter pertaining to his special calling or profession, although his knowledge of that particular matter has been derived from study rather than from actual experience. It is the doctrine of the courts that study of a matter without actual experience in regard to it may qualify a witness as an expert." And further, page 99: "The principle is well established that physicians and surgeons of practice and experience are experts in medicine and surgery, and that their opinions are admissible in evidence on questions that are strictly and legitimately embraced in their profession and practice." The witness in this case was regularly graduated in medicine and surgery, and was duly licensed to practice his profession in this state, and, being such, under the authorities above cited, he was competent to give his opinion on the matter in question by virtue of his general knowledge within the scope of his profession, although he had no experience or special knowledge of the wound in question.

"Rheumatism" Includes Rheumatic Fever.

The Supreme Judicial Court of Maine says, in the case of Holmes vs. Continental Casualty Company, that the plaintiff was insured by a policy of accident insurance issued by the defendant, in which the latter, on the conditions named in the policy, promised to pay the insured an illness indemnity for the time, after the first week, that he was confined in the house and regularly visited by a physician, by reason of acute illness, though in the case of illness resulting from rheumatism, etc., the limit of the company's liability should be one-tenth of the amount which would otherwise be payable under the

policy. During the period covered by the policy the plaintiff was sick with rheumatic fever, and was entitled, under the contract of insurance, to recover the sum of $40, unless that amount should be reduced to one-tenth thereof by reason of the provision in the policy last quoted. The question was, therefore, whether rheumatic fever was included by the term "rheumatism," as that word was used in the policy. The contention of the plaintiff was that by the use of this word the parties meant chronic rheumatism; that rheumatic fever is an acute sickness or disease, and consequently was not included within the meaning of the word; that there was no reason why the company should have excluded from the full benefit of its indemnity a person suffering with any acute sickness. But, the court says, the parties did not use any adjective descriptive of the kind of rheumatism intended. They simply used the word "rheumatism," which is defined in the Century Dictionary as follows: "The disease specifically known as acute articular rheumatism. The name including also subacute and chronic forms apparently of the same causation." In the same dictionary acute articular rheumatism is thus defined: "An acute febrile disease, with pains and inflammation of the joints as the prominent symptoms." The plaintiff suffered with rheumatic fever, which is acute articular rheumatism. This is the first definition given in the Century Dictionary of the word "rheumatism," as above quoted. Rheumatism may be either articular or muscular, and it may be either acute or chronic. The court is unable to say that by the use of this word in the contract the parties intended to include one form and exclude another. Apparently they used the word with its ordinary meaning, which includes all forms, articular and muscular, acute and chronic. The disease with which the plaintiff suffered, although acute, was one form of rheumatism, and must be considered to have been included within the meaning of the word as it was used in the policy.

License Alone Does Not Make a Medical Expert.

The Court of Criminal Appeals of Texas holds, in Smith vs. State, that a person not being a graduate of any school of medicine, not being shown to have read any books on surgery, or to have been at all familiar with gunshot wounds, his mere license to practice medicine, even predicated on the granting of this license by a medical board, does not qualify him as an expert, to testify regarding the fatal character of a wound.

Admissibility of Questions on Physician's Damages.

The Supreme Court of Alabama says, on the appeal of Dunn & Lallande Bros. vs. Gunn, that this action, which was brought by the latter party, a physician, was for the recovery of damages for personal injuries caused by the alleged negligence of the defendants in cutting a ditch across a road, which had been for many years traveled by the public generally, on foot, on horseback and in vehicles, and negligently leaving it open, without taking sufficient precautions to prevent persons driving on said road from falling into the same. On the trial the following questions, numbered for convenience, were propounded by his attorney to the plaintiff, while being examined as a witness in his own behalf: "1. Can you do your practice as conveniently and agreeably as you could before you were injured? 2. State what per cent. your practice has decreased since you were injured. 3. You stated in your cross-examination that your skill as physician is as great now as it was before you were injured. Please state if your ability to prosecute your profession is as great now as it was before you were injured, and if not, what per cent. has your ability to practice your profession decreased since you were injured. 4. State what amount had been your average practice per month before you were injured. 5. What per cent. has the average amount per month you make out of your practice decreased since you were injured?" The questions numbered 1 and 4 called for competent and legal evidence, and the objections to them were properly overruled. Those numbered 2 and 5 called for irrelevant testimony, such as was not within the issue made up by the pleadings. The complaint did not claim damages on account of loss of business sustained by the plaintiff on account of the injuries sustained by him. But the court is not to be understood as committing itself to the proposition that such damages would be recoverable, even if laid in the complaint. The motion to exclude the answer to the third question should have been sustained, for the same reason as above laid down for sustaining objections to questions 2 and 5, as not being within the issues made by the pleadings, and in that it expressed the mere opinion of the witness.

Child of Naturalized Parent Excluded for Trachoma.

The Supreme Court of the United States holds, in the case of Zartarian vs. Billings, United States Commissioner of Immigration at the Port of Boston, that the petitioner's daughter, between 15 and 16 years of age, who had never been in the United States, although her father had become a naturalized citizen thereof, was properly debarred from landing on the finding of the board of inquiry that she had a dangerous contagious disease, to-wit: trachoma, section 2 of the act of March 3, 1903, providing, among other things, that certain classes of aliens shall be excluded from admission to the United States, including "persons afflicted with a loathsome or with a contagious disease." Furthermore, the statute, the court says, makes the finding of the board of inquiry final, so far as review by the courts is concerned, the only appeal being to certain officers of the department. Congress has made provision concerning an alien's wife or minor child suffering from contagious disease, when such alien has made a declaration of his intention to become a citizen, and when such disease was contracted on board the ship in which they came, holding them under regulations of the Secretary of the Treasury until it shall be determined whether the disorder will be easily curable, or whether such wife or child can be permitted to land without danger to other persons, requiring that they shall not be deported until such facts are ascertained. But Congress has not said that an alien child who has never dwelt in the United States, coming to join a naturalized parent, may land when afflicted with a dangerous contagious disease. As this subject is entirely within congressional control, the matter must rest there; it is only for the courts to apply the law as they find it.

Entries of Deceased Physician as Evidence.

The Supreme Court of Missouri, Division No. 2, says, in the case of Knapp vs. St. Louis Trust Company, an action to contest the validity of the will of a Mrs. Margaret Gaffey, that the account book of a deceased physician contained entries of which the following is a fair sample:

"1890. Mrs. Marg. Gaffey, 5888 Cabanne Place.
June 24. Hyperemia of Brain, 1 visit and Med..$2.00
June 24. By cash paid ..... 2.00"

The court thinks that the entries were admissible in evidence in the case, not only for the purpose of showing that at certain dates the physician rendered medical services to Mrs. Gaffey, and was paid therefor, but also for the purpose of showing that he treated her for hyperemia of the brain and for softening of the brain and paralysis, and that the Circuit Court erred in holding otherwise.

Insanity After Murder.

The Supreme Court of Washington says, in the case of State vs. Superior Court of King County, that on a trial for murder the only insanity that can be pleaded as a defense must have existed at the date of the alleged crime. Suppose it was apparent that, when called for trial, the defendant in a murder case was a raving maniac. Would it be contended that a court of justice in any civilized country would proceed with his trial on the indictment or information presented against him? Such a suggestion would be shocking to every sense of humanity. Still, one not so violent might be equally insane, and the trial should proceed no more in the one case than in the other. There is no statute directing that a person while insane may be tried for murder. Such a statute, if enacted, would be in conflict with the federal and state constitutions and the well-established principles of the common law. Criminal courts are possessed of an inherent power to ascertain whether one accused of crime is sane and able to avail himself of all his constitutional rights during the progress of his trial.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal.

March 9.

1 *Academies of Medicine. C. L. Dana, New York.
2 *Physical Processes of Immunity and Infection. J. Wright, New York.
3 Clinical Observations on the Use of Cotarnine Phthalate. C. A. von Ramdohr, New York.
4 Mutual Obligations of Surgeons and Internists in the Development of Gastroenterology. H. W. Bettmann, Cincinnati.
5 *Trichiniasis. A. H. Mellersh and M. H. Fussell, Philadelphia.
6 Cancer Treated by Trypsin. W. J. Morton, New York.
7 Scarlet Fever: Its Treatment at the Hospital for Scarlet Fever and Diphtheria, New York City. E. L. Kellogg, New York.
8 *Indigestion: Its Significance and Diagnosis. H. F. Stoll, Hartford, Conn.
9 Value of Differential Leucocyte Counts in Medicine. I. S. Wile, New York.

1.—See abstract in THE JOURNAL, Feb. 2, 1907, page 442.

2. **Physical Processes of Immunity and Infection.**—This is the second paper on this subject by Wright. In it he discusses the portals of entry and the channels of infection.

5. **Trichiniasis.**—Mellersh and Fussell report a typical case which presents practically all the salient features of the ordinary attack of trichiniasis.

8. **Indigestion.**—Stoll insists on the importance of making a careful investigation into the causes of indigestion in order that a rational method of treatment may be employed with satisfactory results.

Boston Medical and Surgical Journal.

March 7.

10 *Diagnosis of Tumors with Special Reference to the Evil Results of Overconfidence and Delay. M. H. Richardson, Cambridge.
11 *Experimental Incisions Through the Abdominal Wall of Cats. F. T. Murphy, Boston.
12 Proper Inspection of Immigrants and School Children in Regard to the Occurrence of Trachoma. H. Derby, Boston.
13 *Conservation of Hearing in Operations on the Mastoid Region. W. S. Bryant, New York.
14 Complete Suprapubic Prostatectomy Under Nitrous Oxid Gas Anesthesia. G. Walker, Baltimore.

10. **Diagnosis of Tumors.**—Richardson thinks it most desirable, because most beneficial, that all tumors should be regarded as malignant until they are proven benign; and inasmuch as no tumors can be proved benign while they are still in the body, all tumors should, if possible, be removed.

11. **Experimental Incision Through Abdominal Wall.**—From careful experimentation Murphy learned that suturing the incision in the abdominal wall in layers gives a more satisfactory and stronger looking wound histologically than the *en masse* suture. Wounds sutured in layers were the stronger after two weeks, the strength of the scar having been tested by an actual pull. Judged from a histologic study, the suture in layers is more desirable than the suture *en masse* because in this way in the process of repair the strong trabecular tissue arising by proliferation from the fascia unites with tissue of its own kind, thereby increasing the strength of the scar and decreasing the time necessary for repair. He says that the method of closing the abdominal incision with suture of the fascia in layers, and with a deep supportng stitch meets this theoretical requirement of careful approximation of layers, and also the practical requirement of strength and obliteration, so far as possible, of all dead space. Murphy urges that violent manipulation of the edges of an abdominal incision should be avoided with the same care as has been recognized as essential to good results in the handling of the intestines or stomach.

13. **Conservation of Hearing in Mastoid Operations.**—Bryant claims that the maximum postoperative hearing is obtained by judicious preservation of the sound-conducting mechanism, and by the most rapid possible convalescence of the middle ear.

Medical Record, New York.

March 9.

15 *Salt-Free Diet in Chronic Parenchymatous Nephritis. G. L. Peabody, New York.
16 *Influenza, Complicated by Mastoid Abscess and Leptomeningitis. H. B. Mills and N. G. Ward, Philadelphia.
17 Typhoid, Complicated by Multiple Abscesses of the Kidneys and Lobar Pneumonia. L. N. Boston, Philadelphia.
18 Prevention of Disease. E. E. Feild, Norfolk, Va.
19 *The Hand of Iron in the Glove of Rubber. R. T. Morris, New York.
20 *Intra-Abdominal Abscess Due to Gonorrheal and Bacterium Coli Infection Complicating Pregnancy. S. Strauss, New York.

15. **Salt-Free Diet in Nephritis.**—Peabody emphasizes the importance of the dechloridation treatment in cases of general anasarca from chronic parenchymatous nephritis with failing heart power. He says that its effect is perhaps enhanced by the simultaneous administration of heart tonics, such as digitalis and theobromin, preferably the latter. Peabody says that while clonic irrigations with hot sodium bicarbonate solution and catharsis are of value in some cases, the most important agent is the negative one referred to. After complete removal of the edema he administers progressively increasing daily quantities of salt, carefully watching for any recurrence of the edema, the endeavor being to ascertain the exact salt equilibrium for each patient. He is not yet prepared to report results.

16. **Influenza with Fatal Complications.**—The points of especial interest in the case reported by Mills and Ward are the following: An attack of influenza was followed by mastoid abscess, suppuration and necrosis of the ethmoid. An operation was done and the patient was relieved of his symptoms, except the headache. Then there developed suddenly violent pain in the head, with unconsciousness for nine days, restlessness, high remittent temperature, and finally death. At the necropsy there was found a purulent leptomeningitis with pus in the cerebral ventricles. No localizing symptoms had been noted during life.

19. **The Use of Rubber Gloves.**—In this paper Morris decries the use of rubber gloves in surgery. He declares that it leads to slow work, necessitates long incisions, and reduces the natural resistance of the patient. He believes, however, that rubber gloves may be useful in the following conditions: 1. When there is no infection or other condition to call out the patient's natural resistance to infection. 2. When dressings are to be changed for several patients in succession, or when the surgeon operates on an uninfected patient shortly after operating on an infected one. Rubber gloves, Morris declares, are not needed: 1. When infection is already under way and the patient has developed his own protection. 2. When a disease like cancer has called out such a degree of protection that it would be almost impossible to infect the patient. 3. When no infection or other disease is present, but when slow or extensive operating necessitated by clumsy gloves will allow more bacteria to fall into the wound than would be carried in by well-prepared bare hands.

20. **Intra-abdominal Abscess.**—The complication referred to by Strauss was diagnosed during the third month of pregnancy. The case is unique in that it lacked the usual constitutional symptoms of pus formation, and the apparent local signs were only those of uterine gestation, complicated by the gastrointestinal symptoms of pregnancy. Combined vaginal and abdominal drainage was established, and the patient made an uneventful recovery. She aborted three days after the operation. A bacteriologic examination of the pus found showed gonococci and colon bacilli.

Colorado Medicine, Denver.

February.

21 *New Method of Delivering Head in Breech Cases. T. M. Burns, Denver.
22 Suggestions to County Society. T. M. B. Dewer.
23 Administrative Control of Tuberculosis in City and County of Denver. H. Sewell, Denver.
24 Tuberculosis of Cattle: How It May Be Repressed and Its Relation to the Public Health. M. White, Denver.

21. **New Method of Delivering Head in Breech Cases.**—The method described by Burns is a modification of the Prague method. He has employed it satisfactorily in 10 cases. As soon as the shoulders are born, the fetal body is lifted upward and the fetal back is laid on the abdomen of the mother. An assistant is asked to grasp the fetus by the feet and to pull, with considerable force, toward the mother's head. The operator, facing the vulva, with both hands grasps the fetal shoulders, placing the palms on the front of the shoulders and the fingers on the upper part of the shoulders; then, with such steady force as may be necessary, he pulls, pushing the shoulders

directly against the front of the pubes and toward the lower abdomen. The head is delivered slowly when the fetus is not asphyxiated and there is danger of considerable laceration of the perineum. The striking difference between this and others' methods is that it produces extreme extension of the head instead of flexion; it converts the fetus into a strong immobile rod, and causes a quick, easy and safe delivery of the head.

Texas State Journal of Medicine, Fort Worth.

February.

25 *The Conveyance of Typhoid. W. Shropshire, Yoakum, Texas.
26 Roentgen-ray Treatment of Skin Cancer. J. M. Martin, Dallas.
27 A Massive Rhinolith; Weight 43 Grains. B. L. Scott, Waco.
28 *Ichthyosis. J. B. Shelmire, Dallas.
29 Treatment of Skin Diseases by the Roentgen Ray. G. D. Bond, Hillsboro.
30 The Rural Tenant Household and Tuberculosis. S. D. Naylor, Stephenville.
31 The Business Side of General Medicine. J. E. Dildy, Lampasas.
32 *Acute Septic Osteomyelitis. W. Keiller, Galveston.

25. **Conveyance of Typhoid.**—Shropshire believes that personal contact and infected drinking water are uncommon agents in the conveyance of typhoid; whereas flies and dust are common agents of infection.

28. **Ichthyosis.**—Shelmire reports a case of ichthyosis occurring in a woman 26 years of age. Portions of the palms and soles were the only parts not affected by the disease. The patient had also lost most of her hair and eyebrows. Under thyroid extract treatment, alkaline and bran baths and olive oil inunctions she improved very much, but on neglecting the treatment she soon relapsed into her former condition.

32. **Acute Septic Osteomyelitis.**—Keiller reports three cases which illustrate that some of these patients will get well even though their condition may have remained undiagnosed and consequently wrongly treated for months.

Surgery, Gynecology and Obstetrics, Chicago.

January.

33 Radical Abdominal Operation in Carcinoma of Cervix Uteri. E. Wertheim, Vienna, Austria.
34 *Excision of Scapula for Malignant Growth. F. J. Lutz, St. Louis, Mo.
35 *Sarcoma of the Male Breast. F. G. Connell, Oshkosh, Wis.
36 *Modern Surgery of the Kidney. H. Kümmell.
37 *Suprapubic Cystotomy with Retrograde Catheterization in Traumatic Rupture of Urethra. A. Dixon, Henderson, Ky.
38 *Temperatures Occurring During the Puerperium. G. H. Ryder, New York City.
39 *Control or Elimination of Pneumothorax in Pleuropulmonary Interventions. D. Tait, San Francisco.
40 *Operations on Jaw Bone and Face. V. P. Blair, St. Louis, Mo.
41 *Fractures. C. A. Parker, Chicago.
42 *Technic of Hip-joint Amputation. B. B. Cates, Knoxville, Tenn.
43 *Examination of the Uterine Scrapings. E. McDonald, New York.
44 Dr. Fernand Henrotin. N. Senn, Chicago.

34. **Excision of Scapula.**—The clinical features of the case reported by Lutz made the diagnosis of sarcoma of the scapula an easy one. The tumor grew from the anterior margin of the body of the scapula and was of the periosteal variety. The scapula was extirpated. Amputation of the arm was considered unnecessary by reason of the non-involvement of the joint structures. The tumor was easily peeled out of the axilla. The function of the joint, so far as performing the ordinary excursions of the shoulder is concerned, is restored to about one-half of what is normal. The closure of the capsular ligament, after separating it from the neck of the scapula, formed to a limited extent a substitute for an articular socket.

35.—See abstract in THE JOURNAL, Sept. 22, 1906, page 957.

36. **Surgery of Kidney.**—Kümmell discusses the achievements of modern surgery of the kidney from the standpoint of diagnosis and therapeutics. He has done 404 operations on the kidney, including 189 nephrectomies, 133 nephrotomies, 6 resections, 45 fixations, 11 decapsulations, 12 incisions of paranephritic abscesses, and 8 ureteral implantations. The mortality was 12.6 per cent. Among the nephrectomized patients the mortality was 4.7 per cent.

37.—See abstract in THE JOURNAL, Oct. 29, 1906, page 1402.

38. **Temperatures Occurring During the Puerperium.**—The causes of rise in temperature referred to by Ryder are distended breasts, mastitis, pyelitis, puerperal toxemia, simple retention of lochia, anteflexion and retroflexion of the uterus, excitement, septicemia, localized infections outside the uterus, phlegmasia alba dolens.

39. **Elimination of Pneumothorax in Thoracic Surgery.**—Tait believes that Delagénière's method is unquestionably the most valuable of the surgical methods for controlling pneumothorax. The Fell-O'Dwyer apparatus may answer in an emergency, but the uncontrolled pressure thereby exerted on the entire mediastinum may prove very injurious to even a normal heart. Tait states that experience alone will tell the value of the addition of physiologic methods to the technic of intrathoracic surgery and decide the choice between the simple positive and the complicated negative pressure apparatus.

40. **Operations on Jaw Bone and Face.**—Blair presents the results of a study of the etiology and of the pathologic anatomy of developmental mal-relations of the maxilla and mandible to each other and to the facial outline, and discusses their operative treatment when beyond the scope of the orthodontist.

41. **Fractures.**—The 250 skeletons examined by Parker were all of adults, but came to the dissecting room through the usual channels of the county morgue and a hospital for the insane. The number presenting fractures (only *intra vitam* fractures were recorded) was 106, 95 males and 11 females. The total number of fractures, including as single instances certain multiple fractures, was 182. The fractures were present in 42.4 per cent. of all skeletons. Thirty-five per cent. of all the fractures were of the ribs and practically one-fourth (64) of the skeletons presented evidences of fractured ribs. Next in frequency came fractures of the nasal bones, 36 cases. Fracture limited to the nasal processes of the superior maxillæ were observed in 11 skeletons. Two fractures involved the cranium. Five skeletons presented fractures of the spine. The transverse processes of the vertebræ were fractured four times; the scapula five times; the clavicle eight times; the humerus seven times; the ulna five times; the radius twice; the femur four times; the patella once; the tibia and fibula eight times; the tibia alone once; the fibula alone three times; the bones of the foot ten times; the pelvis twice. No fractures were observed in the hyoid bone, sternum, coccyx, bones of the hand and wrist, and some of the individual bones of the skull and tarsus.

42. **Hip-Joint Amputation.**—Cates reports five cases of successful hip-joint amputation done in three instances by Wyeth's method and in two instances by the dissecting method.

43. **Examination of Uterine Scrapings.**—McDonald describes a short method of examining the uterine scrapings. The scrapings are immediately put into salt solution and kept there until the examination is made. They are then taken out and placed on firm, soft blotting paper. After the excess of fluid is drawn away the blotter is carefully laid in a mixture of alcohol (95 per cent.) and formalin (10 per cent.) for one hour. Each scraping is then cut into small size (1 cm. square), immersed in 95 per cent. alcohol for one hour; absolute alcohol one hour, aniline oil one hour, xylol one hour, paraffin one hour. It is then ready to be embedded.

American Journal of Obstetrics, New York.

February.

45 *Management of Bowel of Doubtful Vitality in Operations for Relief of Strangulated Hernia and Intestinal Obstruction. R. B. Hall, Cincinnati.
46 Abdominal Sinuses. L. R. Pierce, Newburgh, N. Y.
47 *Pyelitis Complicating Pregnancy. H. Meek, London, Ontario.
48 Should the Appendix Be Removed as a Matter of Course When the Abdomen has been Opened for Other Conditions. A. L. Smith.
49 Vaginal Cesarean Section and Its Application. G. T. Harrison, New York.
50 *Etiology and Treatment of the Neuroses of Infancy and Childhood. G. N. Acker, Washington, D. C.
51 *Case of Complete Longitudinal Vaginal Septum Obstructing Labor. R. H. Coston, Birmingham, Ala.
52 *Immediate Results of Conservative Operative Measures on Tubes and Ovaries. H. Robb, Cleveland, O.
53 *Do Present Results Justify Partial Removal of Uterine Appendages When Operating for Inflammatory Diseases. F. Krug, New York.
54 *Id.—L. G. Baldwin, Brooklyn.
55 Maternal Dystocia from "Right Posterior Ilium" Producing Persistent R. O. P. Position. M. E. Bates, Denver.
56 *Strangulated Hernia. A. R. Shands, Washington, D. C.

45.—See abstract in THE JOURNAL, Oct. 13, 1906, page 1219.

47. **Pyelitis Complicating Pregnancy.**—In three cases seen by Meek the pyelitis started between the fifth and sixth month of pregnancy. The prognosis is favorable under proper medical treatment and the interruption of pregnancy is seldom, if ever, necessary.

50. **Neuroses in Infancy.**—Acker reports one case showing the effect of heredity in chorea and two cases illustrating the good effects of change of surroundings in cases of choreic convulsions.

51. **Vaginal Septum Obstructing Labor.**—In the case reported by Coston a complete longitudinal section was found extending from the introitus vaginæ to the cervix uteri and closely connected to it and to both anterior and posterior vaginal walls. This septum divided the canal into two separate compartments, through each of which the os could be felt. The uterus was normal.

52. **Conservative Operations on Tubes and Ovaries.**—Robb presents a very thorough analysis of 419 cases for the purpose of emphasizing the value of conservative operations on the ovaries and tubes.

53. **Partial Removal of Uterine Appendages.**—Krug reports the histories of three patients to show that it is necessary to individualize and to treat every case according to its own aspect. It is impossible to generalize, he declares.

54. **Id.**—Baldwin leaves the slightest fringe of ovarian tissue wherever this is possible, but leaves only such tubal tissue as is beyond question normal.

56. **Strangulated Hernia.**—Shands reports a case of strangulated right inguinal hernia in which it was necessary to resect about three inches of gangrenous intestine. On account of the poor condition of the patient no attempt was made to do a radical operation. On the third day it was seen that the abdominal wall had sloughed, leaving a large suppurating wound. This was remedied later and the patient left the hospital nine weeks after the operation in excellent condition.

Bulletin of the Lying-in Hospital of the City of New York.
December.

57 *Effects of Gonorrhea in Mother on the Early Nutrition of the Child. R. W. Lobenstine and J. A. Harrar, New York.
58 Myoma of Uterus Complicating Delivery and Necessitating Subsegment Hysterectomy. J. W. Markoe, New York.
59 The Urine in Pregnancy. F. E. Sondern, New York.
60 *Simultaneous Malarial Infection in Mother and Baby. M. H. Brown, New York.

57. **Effects of Gonorrhea on Child.**—Lobenstine and Harrar studied 250 breast-fed infants during the first ten days of life. In 50 of the mothers the gonococcus was demonstrated in the genital tract. The findings are summarized as follows: 1. The average birth weight of babies of gonorrheal mothers is less than that of babies of normal mothers. 2. The average initial loss is more pronounced in the gonorrheal babies (5.82 per cent., as against 4.74 per cent.). 3. The amount of loss regained on the tenth day is only 10.9 per cent. in the gonorrheal babies, as against 49.3 per cent. in the normal babies. 4. The gonorrheal babies show both more temperature disturbance and more intestinal disturbance than normal babies. 5. The babies of non-gonorrheal febrile mothers show a greater average initial loss than the normal babies, and do not regain at the time of discharge but 5.3 per cent. of their loss, as against 49 per cent. in normal babies.

60. **Simultaneous Malarial Infection in Both Mother and Child.**—Brown found the plasmodium of malaria present in the blood in both mother and baby. Both patients recovered under appropriate treatment. The baby received calomel, grain one-tenth, every fifteen minutes, for ten doses, followed by bisulphate of quinin in aqueous solution, grains 2, three times a day, begun on the third day after the temperature rose to 104.4 F. The temperature then became normal, and continued normal until the fifth day, when it suddenly rose to 100 F., so the dose of quinin bisulphate was increased to 3 grains, three times a day, which controlled the temperature. An organic preparation of iron was then given to overcome the anemia, one-half dram, three times a day.

The American Journal of Orthopedic Surgery, Philadelphia.
January.

61 Exceptional Rachitic Distortions of Legs. W. Blanchard, Chicago.
62 *Influence of Necrosis Produced by Sutures in Tendon Suture and Transplantation. D. Silver, Pittsburg.
63 Scoliosis Caused by Injury of Abdominal Muscle. E. W. Ryerson, Chicago.
64 *New Form of Shoemaker's Last. A. G. Cook.
65 Coxa Valga. B. Galeazzi, Milan, Italy.
66 Coxa Valga or Collium Valgum. J. K. Young.
67 *Reduction of Congenital Luxation of Hip by Manipulation. G. G. Davis, Philadelphia.
68 Pott's Disease. C. Riely, Baltimore.
69 Congentinal Hypertrophy of Leg. W. E. Blodgett, Detroit.
70 Attachment to Bradford Frame for Holding Head. W. E. Blodgett.

62. **Suture Necrosis in Tendon Surgery.**—Silver is convinced that many of the failures in tendon suture and transplantation are due to insufficiency of the suture. He has made this subject one of special study in order to determine whether the necrosis of tendon tissue may reach such a degree as to endanger the stability of the suture. He found that yielding of the tendon in tendon suture and transplantation through necrosis produced by over-tight sutures must occur, if at all, very rarely, when the sutures are tied under ordinary tension. The process of repair was found to be slower in tendon transplantation than in tendon suture and tenotomy. Silver advises that care should be taken not to separate the tendon from the surrounding tissue for any greater distance than is absolutely necessary, and to preserve and suture the sheath as far as possible.

64. **New Form of Shoemaker's Last.**—Cook points out a way by which the orthopedic surgeon can obtain any kind of shoe he wishes and have it fit. The shoes are made over plaster-of-Paris casts of the feet as follows: Seat the patient in a comfortable chair, the foot hanging down and the muscles relaxed. Then completely cover the foot with a thin layer of vaselin and place a small strip of lead over its dorsal surface. Now, apply a plaster-of-Paris bandage, incorporating in the last few turns of bandage a steel plate cut in the form of the sole and heel of an ordinary shoe. Place the foot on the floor with the foot flexed to the right angle, and carefully mold and rub in the plaster-of-Paris bandage until it has set. To remove the cast cut down over the piece of lead, spring the cut edges a little, and pull off as you would a boot. After removing the cast approximate the cut edges, tie with a string or bandage, and it is ready to fill with plaster-of-Paris cream. When the plaster-of-Paris has thoroughly set the original mold, including the steel foot piece, is stripped off, leaving a perfect model of the foot, in the position it assumes when an ordinary shoe is worn. To make the last complete it is only necessary to add a graceful toe, which can easily be built on with a little practice. Finally, saw the last in two at the instep, making a shoulder to prevent slipping. Tack on a small piece of leather to steady it, and cover the last with a stocking. The shoe is now lasted and bottomed in the usual manner. To remove the last pull the heel-piece out of the stocking. Then pull out the stocking and you have the toe-piece. The heel is put on after the shoe is taken from the last.

67. **Reduction of Congenital Hip Dislocation.**—The object of Davis' method is to exert the maximum of force with the greatest degree of safety to the patient. The child is placed face downward on the table with its pelvis resting on a sand pillow and the leg to be operated hanging down over the edge of the table. An assistant now grasps the knee with one hand and the shaft of the femur beneath with the other and flexes and slightly abducts the limb, steadying and supporting it against his body. The surgeon then places his hands over the head of the bone and the trochanter and presses downward with the weight of his body. As the pelvis is supported by the sand pillow this tends to push the head of the bone forward. This manipulation is repeated, the surgeon gradually abducting the thigh (raising the knee) more and more until the amount of abduction desired is obtained. Davis says that in some instances the head of the femur is felt to glide forward, in others it seems to "crunch" (crush) forward, and in others it jumps forward with a distinct click. After it has once been pushed forward it can readily be luxated and re-

placed at will. In difficult cases the thigh should be well flexed and the femur well supported by the assistant with one hand at the knee and the other on the shaft. Tenotomy of the adductor longus tendon is always done previous to attempting reductions. This method has been used in five cases, the patients varying in age from 3½ to 8 years, and reduction was effected in all without either difficulty or accident. One patient had previously been treated unsuccessfully by the usual method by another surgeon.

American Journal of Urology, New York.

February.

71 *Lipoma and Liposarcoma of the Kidney. C. Hartwig, Germany.
72 *Case of Essential Unilateral Hematuria; Nephrectomy. J. W. Keefe, Providence.
73 *Calculus of Bladder. G. K. Swinburne, New York.
74 Hematospermia. E. W. Ruggles, Rochester.

71. **Lipoma and Liposarcoma of Kidney.**—Hartwig reports a case of liposarcoma of the right kidney which was extirpated. The patient died.

72. **Essential Unilateral Hematuria and Nephrectomy.**—In the case reported by Keefe nephrectomy was done successfully on a man aged 38 for essential unilateral hematuria.

73. **Vesical Calculus.**—Swinburne has performed litholapaxy 11 times and suprapubic cystotomy for stone once. He prefers general anesthesia, the anesthetic to be given by a trained anesthetist.

New York State Journal of Medicine.

February.

75 Address, President's, Medical Society of the State of New York. J. D. Bryant, New York.
76 Substitution and its Remedy. C. T. Brandow, Locke, N. Y.
77 Medical Charities of Manhattan and the Bronx. F. L. Lattimore, Philadelphia.
78 History of the Medical Society of the State of New York. J. J. Walsh, New York.

Virginia Medical Semi-Monthly, Richmond.

February 22.

79 Cancer in Fisherville District, Augusta County, Va. A. L. Tynes, Fisherville, Va.
80 Professional Discourtesy. A. B. Greiner, Rural Retreat, Va.
81 Flat Foot. W. P. Matthews, Richmond, Va.
82 Adenoids. J. L. Rent, Lynchburg, Va.
83 Use of Adrenalin During Ether Anesthesia. C. S. Venable, Charlottesville, Va.
84 Fractures—Their Medicolegal Importance. J. T. Graham, Wytheville, Va.
85 *Proprietary Preparations as Affecting Scientific Therapeutics. W. J. Innes, Brookneal, Va.
86 Medical Treatment of Diseases of the Bile Tract. M. P. Rucker, Manchester, Va.
87 Empyema. M. S. Martin, Stuart, Va.
88 Principles of Surgery. S. McGuire, Richmond.

85. **Proprietaries and Scientific Therapeutics.**—Innes is of the opinion that a number of physicians prescribe remedies without knowing the nature of the drugs contained therein, basing their assurance as to the potency of these remedies not on information derived from well-known accredited authorities, but on the testimony of unknown writers who are often men of narrow vision and of limited experience, and who form hasty conclusions. Many of these remedies are new and have not been tested sufficiently to warrant any real estimate of their value. Innes says that two qualifications mark the accomplished physician—diagnostic skill and therapeutic ability. Therapeutics he considers the most important branch of medicine because it is only as a therapist that the patient has any use for the physician. The remedy for this state of affairs, he asserts, is to conform to official remedies, and the profession should see to it that the U. S. Pharmacopeia covers the ground of therapeutic needs adequately so that physicians can limit themselves entirely to official preparations. Innes insists that special attention in the way of practical instruction in clinical therapeutics and prescription writing should be given the undergraduate, and that he be educated to avoid contracting the proprietary habit. The work of the Council on Pharmacy and Chemistry of the American Medical Association is commended highly.

Journal of the Arkansas Medical Society, Little Rock.

February 15.

89 *Dislocation and Fracture of Humerus at Upper Third. L. E. Willis, Newport.
90 *Intestinal Obstruction. T. F. Kittrell, Texarkana.

89. **Dislocation and Fracture of Humerus.**—As the result of a fall from a tree Willis' patient sustained an upward dislocation of the shoulder with fracture of the humerus near the surgical neck. The upper end of the lower fragment was projected upward and almost through the soft parts. Medical aid was not sought until 33 days after the accident. The patient had had fever and chills for 30 days. About 10 days after the accident occurred the right shoulder, arm and pectoral region became almost black. The patient was put on antimalarial treatment for three days and then a free incision was made over the outer aspect of the right shoulder. The head of the humerus and about two and one-half inches of shaft was split half in two longitudinally. The head was forced back into the glenoid fossa, the two fragments were wired together, as were also the upper and lower fragments of the humerus. The patient made an uneventful recovery and was able to use his arm with ease and freedom. When last seen he was using ax, crosscut saw and maul, and did not complain of pain or weakness.

90. **Intestinal Obstruction.**—Kittrell reports five cases of intestinal obstruction. The causes of the obstruction were tuberculous peritonitis, intussusception, cicatricial constriction, gunshot wounds of the intestine and obstruction due to an unknown cause occurring in a man who fell and sustained a fracture of the femur. In this case there had been no bowel movement for three days and there was enormous abdominal distension. The abdomen was opened, but no cause for the obstruction could be found. The patient died a few hours after the operation. He had suffered from a similar attack several years previously.

California State Journal of Medicine, San Francisco.

February.

91 Retiring President's Address, Santa Clara (Cal.) Medical Society. J. L. Asay.
92 Operations on the Thyroid Gland. W. I. Terry, San Francisco.
93 *President's Address, Los Angeles County (Cal.) Medical Association. F. E. C. Mattison, Pasadena.

93. **Nostrums and Proprietaries.**—Mattison devotes most of his address to the discussion of what has been done by lay and medical journals to help the medical profession to educate the public as to the evil effects of the use of nostrums. He also advocates the notification of all communicable diseases and the thorough disinfection of premises occupied by any one suffering from a communicable disease.

Alienist and Neurologist, St. Louis.

February.

94 Psychologic Studies of Man's Moral Evolution. A. S. Ashmead, New York.
95 Erotic Symbolism. H. Ellis, Cornwall, England.
96 Neurones in the Light of Our Present Knowledge. J. Collins and E. G. Zabriskie, New York.
97 Alcohol in Therapeutics. C. H. Hughes, St. Louis.
98 Recurrent Functional as Distinguished from the Typical Organic Dementia Senilis of Literature. C. H. Hughes, St. Louis.

Journal of the South Carolina Medical Association, Greenville.

February 21.

99 Medical Organization, President's Address Fourth Medical Association (S. C.). H. R. Black, Spartanburg, S. C.
100 Non-Professional Misinterpretation of Common Symptoms. F. J. Carroll, Summerville, S. C.
101 Hydrophobia. D. Furman, Greenville, S. C.
102 The Business Side of Medicine. J. Lyon, Ninetysix, S. C.
103 Lobar Pneumonia—Its Etiology, Pathology and Treatment. H. L. Shaw, Fountain Inn, S. C.
104 Study of Therapeutics. A. S. Todd, Manning, S. C.

Philippine Journal of Science, Manila (Supplement V).

December.

105 Enumeration of Philippine Gramineæ with Keys to Genera and Species. E. D. Merrill.

The Medical Herald, St. Joseph.

March.

106 Notes on Postoperative Peritoneal Adhesions. B. A. McDermott, Omaha, Neb.
108 Corn Nuclein. W. F. Waugh, Chicago.
107 Heart Disease in Obstetric Cases. M. Strong, Omaha.
109 Tuberculosis of Joints. T. E. Potter, St. Joseph.
110 Operative Treatment of Gonorrhea in the Male. A. C. Stokes, Omaha.
111 Tubo-uterine Pregnancy. F. E. Walker, Hot Springs.
112 Relations of the Ministry and the Medical Profession. W. W. Burks, Nevada, Mo.
113 Diseases of the Kidneys with Cardinal Symptoms. S. A. Johnson, Nevada, Mo.

Interstate Medical Journal, St. Louis.

(Annual Progress Number.)

February.

114 Therapeutics. W. Engelbach, St. Louis.
115 Genitourinary Surgery. H. McC. Johnson, St. Louis.
116 Gynecology and Obstetrics. H. Ehrenfest, St. Louis.
117 Neurology and Psychiatry. S. I. Schwab, St. Louis.
118 Laryngology and Otology. W. E. Sauer, St. Louis.
119 Dermatology and Syphilis. M. F. Engman, St. Louis.

St. Louis Medical Review.

March 2.

120 Treatment of Gallstones. J. C. Morfit, St. Louis.
121 Relation of Certain Abnormal Ocular Conditions to the Etiology of General Neuroses. N. M. Semple, St. Louis.

Lancet-Clinic, Cincinnati.

February 23.

122 Training of the Child with Reference to Prevention of Nervous Diseases. P. Zenner, Cincinnati.
123 Asthma with Mixed Infection Following Repeated Attacks of Influenza. W. F. Waugh, Chicago.

March 2.

124 After-treatment of Suppurative Abdominal Drainage Cases. C. T. Souther, Cincinnati.
125 *Present Status of Acute and Chronic Suppuration of the Middle Ear. J. A. Stucky, Lexington.

March 9.

126 Foreign Body in the Larynx and Tracheobronchial Tract. L. D. Brose, Evansville, Ind.
127 Operations for Pyothorax. S. Graves, St. Louis.
128 Treatment of Alopecia. E. S. McKee, Cincinnati.
129 Treatment of Acute Catarrhal Bronchitis. G. F. Butler, Chicago.

125.—This article has appeared in the *Kentucky Medical Journal*, February, 1907.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional interest.

British Medical Journal.

February 23.

1 *Treatment of Lachrymal Obstruction. J. H. Parsons.
2 *The Lachrymal Sac in Economy of Vision. J. J. Evans.
3 *Merycism of Rumination in Man. E. M. Brockbank.
4 *Milroy Lecture on Kala-azar. L. Rogers.
5 *Case of Cerebrospinal Meningitis. J. S. Darling and W. J. Wilson.

1. **Treatment of Lachrymal Obstruction.**—Parsons says that in the majority of cases of lachrymal obstruction caused by inflammation of the lachrymal sac and nasal duct, syringing, properly carried out, results in complete cure, if the case has never been treated with probes. If syringing fails, extirpation of the lachrymal sac is indicated.

2. **Lachrymal Sac in Economy of Vision.**—According to Evans, excision of the lachrymal sac is indicated in the following conditions: 1. Cases of dacryocystitis which have resisted conservative treatment by probing, etc., for three months or more. The radical treatment is more urgently called for when probing causes acute suffering, when the patient has already suffered from corneal complications, and when there is disease of the bony walls of the lachrymal canal. 2. In cases in which the dacryocystitis is bilateral and the patient has already lost one eye from hypopyon ulcer, the removal of the sac on the side of the healthy eye is a matter of extreme economic necessity. At present insurance companies are loth to insure a workman who has lost one eye, but if the danger of a double dacryocystitis became common knowledge, probably all such cases would be refused absolutely. 3. As a preliminary to operations on the eyeball in cases of dacryocystitis. Here again the necessity for the operation becomes absolute if the fellow eye has already been lost through postoperative infection from the lachrymal sac. 4. In diseases of the sac which endanger general health—for example, tubercle and malignant growths. 5. Lachrymal fistula.

3. **Rumination.**—Brockbank has under observation several members of one family in which rumination has occurred, or is occurring in at least three generations, probably four, and there are signs of its onset in the fifth generation. The family is healthy as a whole. Males and females are affected with equal frequency. All the cases are of a simple variety.

4. **Kala-Azar.**—In this lecture Rogers reviews what is known of this affection, and analyzes several epidemics that occurred in India.

5. **Cerebrospinal Meningitis.**—Darling and Wilson report a case of cerebrospinal meningitis from which they obtained a pleomorphic diplococcus in pure culture from three different samples of cerebrospinal fluid taken by lumbar puncture. The coccus assumed a bacillary form on Conradi-Drigalski media; did not liquefy gelatin; clotted milk; produced no indol; produced no gas in sugar-containing media, and was pathogenic for rabbits. The authors conclude that this meningeal diplococcus belongs to the *Streptococcus fecalis* group and is identical with the *Micrococcus rheumaticus*.

The Lancet, London.

February 23.

6 *Objects of Hunter's Life and Manner in Which He Accomplished Them. H. T. Butlin.
7 *Milroy Lectures on Kala-Azar. L. Rogers.
8 *Lettsomian Lectures on Diagnosis and Localization of Cerebral Tumors. C. E. Beevor.
9 *Conditions of Blood Vessels During Shock. J. D. Malcolm.
10 *Infective Endocarditis Cured by Inoculation of a Vaccine Prepared from Organisms in Patient's Blood. J. Barr, W. B. Bell and S. R. Douglas.
11 *New Method of Fixation of the Bones in Excision of the Knee. E. W. H. Groves.
12 *Affections of the Pancreas. S. Phillips.
13 Preliminary Note on Rinné's Test. R. Lake.
14 *Cellulitis of the Spermatic Cord. F. C. Madden.
15 Rôle of Blood Plasma in Disease. H. Campbell.

6.—See abstract in THE JOURNAL, March 16, page 974, paragraph 10.

7. **Kala-Azar.**—See abstract No. 4.

8. **Cerebral Tumors.**—In this lecture Beevor discusses the tumors situated in the region of the cortex in front of the ascending frontal convolution and comprising the superior, middle and inferior frontal convolutions.

9. **Condition of Blood Vessels During Shock.**—Malcolm reiterates his views as to the nature of shock and the conditions of the blood vessels during shock. He holds that the vessels, and especially the peripheral vessels, are tensely contracted and that the blood is forced rather than drawn into the central parts of the body. He is of the opinion also that adrenalin administered for shock can be beneficial only at considerable risk and that saline injections are useful and free from danger only during recovery from shock. He prefers injections into the cellular tissue to intravenous injections, because if the fluid does not find its way into the vessels from the cellular tissue an attempt to force it into a vein is likely to prove harmful as well as futile. He regards the usefulness of injections with a view to increasing the bulk of the blood as very limited in cases of uncomplicated shock. The most important treatment, in his opinion, is preventive. Everything possible should be done to maintain a flow of blood to the surface and to the head, and to keep the patient alive by warmth, by the administration of strychnin and of vasodilators, and by mechanical means. The surgeon must reduce the traumatism by getting over the operation quickly.

10. **Vaccine Cure of Infective Endocarditis.**—In the case reported by the authors inoculations were regulated by the examination of the opsonic power of the patient's serum.

11. **Excision of Knee.**—Groves describes a method of fixation of the bones following excision of the knee which he had used successfully in a number of cases. Two rods are passed horizontally through the femur and the tibia about two inches in each case from the line of section. Each rod is one eighth of an inch in diameter and six inches long. The projecting ends are then drawn together by two vertical rods provided with screw threads and nuts. These can very quickly be tightened up by a box spanner. When the apparatus is in position and firmly screwed up the bones are immovably fixed. The final tightening of the screw nuts can be done after all the stitches are put in and the leg is on a splint and the two surfaces of bone can be securely pressed together so that the occurrence of a fibrous zone between them is impossible. Each of the transfixing rods has a point and screw thread at one end and an eye one-eighth of an inch in diameter at the other. The lateral rods are similarly made. Each transfixing rod has one connecting rod passing through its eye and its point passes through the eye of the opposite connecting rod.

Groves makes the following claims for this operation: 1,

It fixes the bones together more firmly and more rigidly than any other method because the fixation acts on the dense bone of the shaft and not on the cancellous tissue; 2, the bones are transfixed and held at points well away from the diseased area; 3, the final fixation and tightening can be effected after the wound is sewn up and the leg is on a splint; 4, it saves the patient a great deal of pain in the dressings; and, 5, it leaves in the bones no foreign bodies which may have to be removed by a subsequent operation.

12. **Affections of Pancreas.**—In this paper Phillips discusses the clinical history and treatment of acute pancreatic catarrh.

14. **Cellulitis of Spermatic Cord.**—Under this title Madden refers to a series of cases the symptoms in which closely resembled those of strangulated hernia, but which on operative investigation proved to be cases of cellulitis of the spermatic cord. In two of the cases the patients stated that they had suffered for many years from hernia. In both instances Madden was able to demonstrate an empty hernial sac in the center of the scrotum and inflamed tissues encountered.

Journal of Tropical Medicine and Hygiene, London.

February 15.

16 Tropical Forms of Pityriasis Versicolor. A. Castellani.
17 *Tropical Clothing. L. W. Sambon.
18 Hemoglobinuric Fever with Long Latent Period. P. W. Bassett-Smith.

17. **Tropical Clothing.**—Sambon claims that the white man in the tropics should wear black, red, or orange-colored clothing because these are the colors which exclude the short rays. He states that the use of white clothing has been adopted in imitation of native custom, but in doing so the white man overlooked the all important fact that the native is already fully protected by a natural armor of pigment which is impervious to the harmful actinic rays. He asserts that the wearing of white outer garments and black, red or yellow underclothing, or the use of white garments lined with a cloth of appropriate color would no doubt be effectual; but the ideal for the white man in the tropics is a fabric that might at the same time exclude the actinic rays and reflect the heat rays, thus avoiding complexity of garments and much unnecessary weight.

Medical Press and Circular, London.

Februrary 6.

19 Chronic Non-suppurative Diseases of the Middle Ear. M. Yearsley.
20 *Possible Danger in Exploratory Puncture of the Breast. H. Armstrong.
21 Tuberculosis Dispensaries and the Co-ordination of Measures Against Tuberculosis. R. W. Philip.
22 *Early Case of Leontiasis Ossea. S. H. Law.

February 13.

23 *Treatment of Non-Malignant Gastric Ulcer. C. Ball.
24 Cerebrospinal Meningitis. W. Elder.
25 Acute Meningococcal Cerebrospinal Meningitis in Young Children. J. Thomson and S. McDonald.
26 Infant Feeding. R. Hutchison.
27 *Treatment of Peritonitis. H. W. Carson.

February 20.

28 Hydronephrosis with Notes of an Extreme Case. W. Alexander.
29 *Acid Intoxication Following General Anesthesia. R. Campbell.
30 Cerebrospinal Meningitis in Glasgow. A. K. Chalmers.
31 Eye and Ear Symptoms in Cerebrospinal Meningitis. C. Shaw.
32 *General Fetal Dropsy. J. Dunlop.

20. **Exploratory Puncture of Chest.**—Armstrong states that when he is positive of the directness of clinical diagnosis he does not hesitate to resort to puncture to confirm the diagnosis; but when he is doubtful, he resorts to the use of the needle with much trepidation. In illustration of his statement he cites one case in which the use of the needle nearly caused the death of the patient. The case proved to be one of chronic interstitial pneumonia, possibly infected with tubercle, and the needle entered the lung. He advises fortifying the patient by previous administration of stimulants, performing the operation with the patient in the recumbent position and not plunging the needle too far in.

22. **Leontiasis Ossea.**—Law's patient was a boy only 12 years old. He seemed to be in goood health and was well developed. His only complaint was nasal obstruction. On examination there was found a hard, bilateral growth in the infraorbital region, extending up in such a way as to cause exophthalmos and the nasal obstruction. The Roentgen ray showed great thickening of all the bones of the cranial vault.

23. **Treatment of Non-Malignant Gastric Ulcer.**—Ball urges that in all cases of uncomplicated gastric ulcer in which a reasonable trial of treatment by rest and limited diet is not followed by marked improvement, gastroenterostomy should be performed. In one of his cases there was a curious sequence to gastroenterostomy. The portion of jejunum corresponding to the stomach anastomosis became dilated to four times its normal size, forming a sort of secondary stomach, and produced obstruction by kinking of the distal portion of intestine; there was also continuous vomiting. A lateral anastomosis below the dilatation relieved the symptoms; this was done a year ago and the patient at present remains in good health.

27. **Treatment of Peritonitis.**—Carson discusses the treatment of peritonitis under three heads: (1) preoperative, (2) operative, and (3) postoperative. Under the first head he discusses the use of turpentine enemas and placing the patient in such a position that the exudation will tend to gravitate toward the pelvis. The operative procedure should include elimination of the primary cause, avoidance of manipulation, breaking down adhesions, flushing, etc., and continuous drainage. In the after treatment the aim should be to promote leucocytosis, to prevent further infection of the peritoneum, and to eliminate the toxic products in the infecting organisms before they can become absorbed into the circulation.

29. **Acid Intoxication Following General Anesthesia.**—Campbell is convinced that delayed chloroform poisoning is a dread reality, and he reports three cases that terminated fatally 50 hours, 38 hours and 30 hours respectively after operation. That heredity may enter into the consideration of the causes of this condition may be assumed from the fact that in one of Campbell's cases he was informed that two other children of the same family had died in much the same way, but without any anesthetic having been given. In another case of unexpected death he discovered that a brother of the patient had died in exactly the same way the day after being operated on.

32. **General Fetal Dropsy.**—In the case reported by Dunlop miscarriage took place during the sixth month. The fetus resembled a case of acute Bright's disease with general anasarca, with pitting on pressure. There was no desquamation and no emphysema of the skin, but a true dropsy. The father was well but the mother had had influenza while she was pregnant. She was in good health both before and after this attack.

Clinical Journal, London.

Februrary 6.

33 *Abscess of the Liver. H. Mackenzie.
34 *Arrest of Cancerous Growths. W. B. Clarke.
35 Treatment of Surgical Emergencies. A. Baldwin.
36 Surgery of the Rectum. F. C. Wallis.

February 13.

37 Pneumonia. W. H. White.
38 Certifiability. C. A. Mercier.

February 20.

39 Essentials of a Diagnosis. C. B. Lockwood.
40 Diagnosis of Pregnancy. F. C. McCann.

33. **Abscess of Liver.**—Mackenzie reports three cases, in one of which the diagnosis was comparatively easy, while in the other two cases it was somewhat difficult, the symptoms simulating in one instance acute pneumonia. He says that if a sufficient number of symptoms and visible signs are present an exploratory operation should be done.

34. **Arrest of Cancerous Growths.**—Clarke reports two interesting cases of malignant growth. One of the patients had a tumor of the intestine which had been arrested for ten years. The tumor had not been removed. Microscopic examination of a lymph gland showed undoubted evidences of carcinoma. The second patient had carcinoma of the breast. A Halstead operation was done but the growth recurred and two years afterward the patient begged that something be done to relieve her pain. There were a large number of secondary growths on the side of the chest, but no evidence of visceral invasion. A double oöpherectomy was done. Within 48 hours the pain ceased and the thickened and edematous skin began to shrivel. Nearly all the secondary nodules disappeared. In this case the tumor has been arrested seven years.

Presse Médicale, Paris.

41 (XV, No. 5, pp. 33-40.) *Dietetics for the Aged (La loi de 1905 et l'alimentation rationelle du vieillard). L. Landouzy.
42 *Possible Spread of Typhoid Fever by Urine (Analyses d'urines typhiques et propagation, etc.). M. P. Remlinger.
43 *Choice of Hot Beverage in Stomach Affections. (Choix d'une boisson chaude). L. Meunier.
44 (No. 6, pp. 41-48.) Prodromal Pseudo-neurasthenia in Dementia Præcox (Pseudo-neurasthénie, etc.) Pascal.
45 Disinfection of Sputum (Désinfection des crachats). J. P. Langlois.

41. **Dietetics for the Aged.**—Landouzy discusses the subject from the standpoint of state assistance of the aged poor; a law to this effect went into force in France with the current year. This grants a pension to the aged, the infirm and the incurables, ranging from $2 to $6 a month, to be paid at their homes if they are not already beneficiaries of institutional care. Wise expenditure of this sum is necessary, he says, to produce the 1,950 calories needed by the average old man or woman weighing about 140 pounds. Most of these calories are required to maintain the body heat, muscular energy and the like being reduced to the minimum. He gives a number of menus costing about 10 cents a day, suitable for the aged, emphasizing that fresh meat is costly and is less nourishing than a diet of bread with a little ham or bacon or coffee, grapes or raisins, figs or chocolate, vegetables, chestnuts, rice and a little cheese. For beverages he suggests milk, coffee and a glass of native wine at dinner. An inexpensive, nourishing soup can be made from vegetables and bacon fat. He declares that on a diet of this kind the aged will thrive, as it is of easy digestion, appetizing and non-constipating.

42. **Analysis of Typhoid Urine.**—Remlinger suggests that special air-tight vials should be provided for receptacles for urine that is to be analyzed, and that all persons having anything to do with the transportation or the analysis of the urine should take special precautions against contamination of their hands or articles in the environment. Achard has recently reported the infection of an attendant whose duty it was to carry the urine of typhoid patients to the laboratory for examination, and of the interne who made the examination.

43. **A Hot Beverage for Persons with Stomach Affections.**—Meunier thinks that it is possible to derive direct therapeutic benefit from the hot drink taken with the meals by adding to the hot water some substance that will aid digestion and evacuation of the stomach. Considerable experience has shown remarkable efficacy in this respect of an infusion of malt, retaining unimpaired the diastase or digestive ferment that forms around the germinating bud of the grain of barley. In making beer, the grain is treated with boiling water which destroys the diastase. He recommends an infusion of the malt made with water just below the boiling point. The beverage is prepared like French coffee; a tablespoonful of the malt is ground in a coffee mill and a teacupful of hot water is poured over it. The diastase in this refreshing drink supplements, he asserts, the action of the diastase in the saliva, thus aiding in the digestion of starch.

Semaine Médicale, Paris.

46 (XXVII, No. 6, pp. 61-72.) Posthemiplegic Contractures. (Contractures post-hémiplégiques pseudo-précoces.) L. Bard.
47 New Method of Local Anesthesia in Extraction of Teeth. (Anesthésie diploique.) R. Nogué.

Monatsschrift f. Geb. und Gynäkologie, Berlin.

Last indexed, page 652.

48 (XXV, No. 1, pp. 1-148.) *Experiences with Ruptured Extrauterine Pregnancy with Hemorrhage into the Abdominal Cavity. (Extrauterinschwangerschaft mit freiem Bluterguss in die Bauchhöhle.) E. Haim and O. Lederer. Concluded in No. 2.
49 *Placente Prævia at Schauta's Clinic. (Zur Statistics der P. p.) O. Bürger and R. Graf.
50 Innervation of Uterus. (Innervation des Ut.). O. Roith.
51 *Relations Between Gynecologic Affections and Neuroses. (Wie verhalten sich die gyn. Erkrankungen zu den Neurosen.) H. Sutter.
52 (No. 2, pp. 149-290.) *Laparotomy for Irreducible Backward Displacement of Gravid Uterus. (Was kann die Lap. bei irreponibler Retroversio und Retroflexio uteri gravidi leisten.) O. Küstner.
53 Unelastic Balloon as Obstetric Dilator. (Der zugfeste Ballon als geburtshilflicher Dilatator.) A. Mueller.
54 Retroperitoneal Tumor. (Retroperit. Geschwulst.) W. Hannes.
55 Epithelioid Tissue in Female Genital Apparatus. (Epithel. Gewebe im Gen.-App. des Weibes.) K. Ulesko-Stroganowa. Commenced in No. 1.
56 *Carbon Dioxid Percentage in Blood of Umbilical Vein. (Kohlensäuregehalt des Blutes in der Nabelschnurvene.) A. Rieländer. Commenced in No. 1.

48. **Ruptured Ectopic Pregnancy.**—This communication from Lotheissen's clinic reviews the experiences with 27 cases of ruptured extrauterine pregnancy. Only four of the patients were primiparæ. In nine instances the rupture must have occurred at the time of the last menstrual period and the hemorrhage from it had been assumed by the patient to be the normal menses. The rupture occurred generally between the second and third month of the pregnancy; in six cases during the first month. The imbedding of the ovum in the tube makes the wall so thin at this point that rupture is liable to occur on the slightest provocation. A case is on record in which fatal hemorrhage followed gentle palpation by the physician. The rupture may occur without serious hemorrhage at the time. In one of the cases reported the patient was being prepared for operation; the pulse was good and there were no signs of collapse. While the field of operation was being disinfected, collapse suddenly occurred. The waxy pallor is the most striking symptom in a typical case of ruptured extrauterine pregnancy with profuse hemorrhage. The pallor in some cases had even a yellow tinge, although actual icterus was never observed in the clinic. The hemoglobin percentage dropped to 25 or 30 in most of the cases. The abdomen was usually painful on pressure all over the lower part, while meteorism and rigidity of the abdominal walls were minimal if present at all. Even with small amounts of escaping blood, zones of dulness were discovered in the lower part of the abdomen or over Poupart's ligament. Fluctuation was rarely observed, probably owing to the fact that blood is thicker than the fluid of effusions and transudations. In thirteen of the patients the pulse was over 120, in six between 100 and 120, and in the others below 100. No typical findings were discovered in the genital organs, although there was some escape of blood through the vagina at the time of the rupture in 16 cases. In a few cases the hemorrhage was so profuse that it suggested uterine abortion. Important for differentiation is a history of suddenly appearing, irregular genital hemorrhage with sudden pains, pallor, vertigo and tendency to faint, followed by a period free from symptoms.

49. **Placenta Prævia at Schauta's Clinic.**—Bürger and Graf state that 344 cases of placenta prævia were observed in the clinic between 1892 and 1905, in a total of 44,676 childbirths. This is an average of one to 130 births. Other German writers have reported an average ranging from the maximum of one in 58 to one in 1,532 (von Winkel, Saxony). The predisposition to placenta prævia seems to be enhanced by previous childbirths, especially when accompanied by certain complications, such as abortion, operative delivery, atony or manual or premature detachment of the placenta. About 45 per cent. of the 350 children in question were born viable. Comparison with statistics from other clinics demonstrates, they think, the superiority of the treatment followed over that in vogue elsewhere. It consists in combined version without immediate extraction, with eventual dilatation of the still relatively narrow birth passages by means of the hystereurynter. About 28 per cent. of the stillborn children had not reached term and 11.7 per cent. were born before the eighth month. Nine others were in extreme maceration, one was syphilitic and another a monstrosity. The mortality in other clinics is given as ranging from 48.88 to 78 per cent.

51. **Relations Between Gynecologic Affections and Neuroses.**—Sutter's article is based on 315 cases of various gynecologic affections observed in public and private clinics at Munich. Neuroses were observed in 19.5 per cent. of the 200 private patients and in 42.6 per cent. of the 115 patients in the public clinic. The neuroses, although less numerous, were more serious in the first group. A chart was kept for each patient recording the intelligence, memory, gait, attitude, motor paralyses, signs of motor excitability, sensitiveness to contact, to pressure, to pain, temperature, paresthesia, hyperalgesia of the skin, reflexes, bladder and rectal functions, the findings being noted both during and outside of the menstrual periods. The neuroses were observed with special frequency in the cases of inflammatory gynecologic processes and displacements. Sutter agrees with Windscheid that the acquired neuropathic disposition is a more frequent factor than the inherited in these

gynecologic neuroses. He adds that masturbation in women has much more serious consequences than in men. He thinks that a morbid nervous system is able to induce a gynecologic affection, even aside from the manifest affections due to masturbation, foreign bodies and exaggerated sexual desires. Sutter's experience has been that myoma is rare among multiparæ. Chronic metritis and chronic atrophying parametritis are liable to be induced by psychic and physical overwork, with frequent commotion in the nervous system from infectious diseases, chlorotic conditions or intoxications of various kinds. The sympathetic system suffers especially under these conditions. The absence of neuroses with cancer is a noticeable fact in his statistics. The knowledge of the presence of cancer probably banishes the thought of all minor troubles; it is possible that carcinomatosis may prevent the development of a neurosis.

52. **Laparotomy for Irreducible Retrodisplacement of the Pregnant Uterus.**—Küstner reports a case of serious disturbances from fixation of the gravid uterus by adhesions fastening it low down in backward displacement. The pregnancy was between the fourth and fifth month. The abdomen was opened and the dense adhesions severed, after which the uterus was easily raised to its normal place. No attempt at ventrofixation was made, but a Smith pessary was introduced and a catheter left in the bladder for a week. The pregnancy continued to a normal termination. Küstner declares that a laparotomy allows correction of the condition with the least possible injury to the bladder. "The bladder is everything, the uterus nothing, in backward displacement of the gravid uterus," Pinard used to say, and a laparotomy allows better oversight of the bladder and adhesions in such cases. Küstner adds that the incision should begin above the umbilicus and should not extend so far down as the space in front of the bladder. The latter organ is thus left in peace while the uterus is being mobilized. Instead of attempting any operation on the bladder, or inducing abortion in cases of the kind with threatening symptoms, the possibility of straightening the uterus through a laparotomy should be considered. This should be done not so much in the interests of the pregnancy as to insure more favorable conditions for the functioning of the bladder. In the after-treatment the damaged bladder should receive first consideration.

56. **Carbon Dioxid in the Blood of Vein of the Umbilical Cord.**—Rieländer tabulates the findings with 21 infants and gives an illustrated description of a simple apparatus which he has devised to determine the proportion of carbon dioxid in the blood. He thinks that it may prove useful in the clinic generally. Hitherto the physician has merely been able to guess at the proportion of carbon dioxid in the blood from the degree of cyanosis.

Mitteilungen a. d. Grenzgebieten der Med. u. Chir., Jena.
Last indexed, XLVII, page 1422.

57 (Third supplementary No., pp. 1-1128, *Memorial to Mikulicz.*) Johannes von Mikulicz-Radecki. W. Kausch.
58 *Operative Treatment of Extensive Prolapse of Rectum (Mastdarmvorfälle.) O. Samter.
59 *Autoplastic Implantation of Bone. (Knochen-Implantation.) A. Tietze.
60 *Experiences with Surgery of the Stomach. (Magenchirurgie.) E. Martin.
61 *Technic of Plastic Operation on the Nose. (Nasenplastik.) A. Henle.
62 Otogenic Septic General Infection. (Vom Ohr ausgehende septische Allgemeininfektionen.) W. Kümmel.
63 Emergency Hospital for Industrial Accidents. (Berufsgenossenschaftliche Unfallstation vom Roten Kreuz in Breslau.) A. Niché.
64 *Decapsulation in Chronic Nephritis. (Chir. Behandlung der chron. Nephritis nach Edebohls.) M. Zondek.
65 *Typhoid Ulceration in Thyroid Gland. (Strumitis typhosa.) W. Hübener.
66 *Diagnosis and Treatment of Foreign Bodies in Upper Air Passages. (Fremdkörper, etc.; Bronchoskopie und Radioskopie.) G. Gottstein.
67 *Absorbable Magnesium Button. (Zur Darmknopffrage.) Chlumsky.
68 Hysteric Fever. (Hysterische Fieber.) W. Kausch.
69 Congenital High Shoulder. (Schulterblatthochstand.) Graetzer.
70 *Cancer of Large Intestine. (Zur Klinik des Dickdarmkrebses.) W. Anschütz.
71 Post-typhoid Abscess in Liver. (Leberabscess nach Typhus.) P. Lengemann.
72 *Influence of Oxygen on the After-effects of Chloroform. (Einfluss des Sauerstoffes auf die Nachwirkungen des Chl.). Id.
73 *Roentgen Treatment of Stiff Joints. (Röntgenbehandlung versteifter Gelenke.) E. Moser.
74 Acute Dilatation and Excessive Secretion of Stump of Stomach after Resection for Carcinoma. (Akute Dilatation und Saftfluss nach Resektion, etc.). Helle.
75 Abnormally Short Fingers or Toes. (Brachydaktylie.) A. Machol.
76 Intestinal Incarceration Cured by Laparotomy. (Innere Einklemmung, etc.). V. E. Mertens.
77 *Contusion of the Epiphyseal Cartilage of the Head of the Femur and its Consequences. (Kontusion der Knorpelfuge des Schenkelkopfes und ihre Folgezustände; Coxa vara. Coxitis deformans.) G. Schmidt.
78 *Experimental Surgery of Lungs and Pleura. (Lungen- und Pleurachirurgie.) M. Tiegel.
79 Method for Exact Measurement of the Spine in Various Positions. (Messung und Aufzeichnung der Wirbelsäule.) K. Ludloff.
80 *Connection Between Clinical Duration of Gastric Cancer and Operability. (Chir. Behandlung des Magencarcinoma.) A. Hoffmann.
81 Statistics of Mammary Carcinoma and Cures. (Mammacarc. u. deren Heilung.) E. Scheu.
82 Hysterical Edema from Surgical Standpoint. (Hyst. Oedem.) C. Goebel.
83 *Bloodless Operations on the Skull and Study of the Brain under Atmospheric Overpressure. (Blutleere Op. am Schädel unter Ueberdruck.) F. Sauerbruch.
84 Surgery of Gastric Cancer. (Magenresektionen, 1891-1904, Mikuliczschen Klinik.) M. Makkas.
85 Bullet Wounds. (Schussverletzungen, Mikuliczschen Klinik.) Stappenbeck.
86 Contusions of the Intestines. (Zur Pathologie und Klinik der Darmkontusionen.) H. Bucholz.

58. **Extensive Prolapse of the Rectum.**—Samter reports a dozen cases with the ultimate outcome of operative treatment. Recurrence was not observed in any instance. The various conditions presented by the different patients compelled strict individualization in the operative procedures, combining and modifying different technics, as he relates in detail.

59. **Autoplastic Implantation of Bone.**—Tietze relates good results obtained by transplantation of a piece of bone in order to remedy serious defects in the forearm. His experience with the method in the foot has not been satisfactory, but for the hand it has given excellent results. The first patient was a woman of 53; the first phalanx of the left great toe was implanted in the defect left after resection of the lower end of the radius for sarcoma. The head of the phalanx was cut off, and it was implanted with the cartilage end toward the carpus and the raw end toward the cut surface of the radius. Roentgen pictures were taken every month, and by the end of the year the bones were seen to be solidly united. A small recurrence of the tumor was removed two years later, and also a nodule found on the back of the hand. Since their removal the patient has been in excellent health, and she is still an accomplished pianist. The second patient was a man of 50; a piece from the right tibia, about 5 or 6 cm. long, was implanted in the defect in the left ulna after resection of a periosteal sarcoma. The bones are now solidly united. The third patient was a housemaid of 21. The peripheral end of the second metacarpus of the left hand had been destroyed by a tuberculous process. After resection the defect was filled with a piece taken from the fourth metatarsus of the left foot. It fitted so perfectly in the defect that under the Roentgen rays it looked as if the original bone had been merely fractured transversely.

60. **Experiences with Operations on the Stomach.**—Martin reviews his experiences during the last eight years with operations on the stomach, a total of 72 operations on 61 patients. In cancer, whenever he is sure that everything morbid can be removed, he performs a radical operation, but not otherwise. He regards jejunostomy as a very promising operation for ulcer, but offering little prospects of benefit in case of cancer. He discusses the indications, technic and after-results.

61. **Plastic Operations on the Nose.**—Henle has found that plastic operations with cartilage are free from the disadvantages of bone grafting. He relates the particulars of two cases in which the nose was restored by making a framework out of one or two pieces cut from the costal cartilages. In one case the nose was congenitally deformed; in the other the nose had been shot away. The cosmetic results attained have remained permanent during the years since, cartilage not being absorbed like bone tissue or paraffin.

64. **Decapsulation of the Kidney in Chronic Nephritis.**—Zondek reiterates that experimental research and clinical experience are confirming the uselessness and inadvisability of Edebohls' method of decapsulation in chronic inflammation of the

kidneys. The lesions are irreparable, but the patient can live many years after their first appearance, while decapsulation is by no means a harmless or justifiable intervention under these circumstances.

65. **Typhoid Strumitis.**—In Hübener's case the typhoid infection dated from 16 years before, but evacuation of the abscess in the thyroid gland revealed the presence of typhoid bacilli in pure cultures. He reviews 119 articles from the literature bearing on the metastases of typhoid infection.

66. **Foreign Bodies in the Upper Air Passages.**—About 164 pages are devoted to the experiences at Mikulicz's clinic with foreign bodies in the upper air passages, 15 cases in all, and a summary of 137 cases published by others. Immense progress has been realized by the introduction of bronchoscopy.

67. **Button for Anastomosis of Hollow Viscera.**—Chlumsky gives a historical sketch of the subject, with 46 illustrations, and commends buttons made on the pattern of the Murphy button, but from absorbable material. Independently of Payr, he found that magnesium is an excellent material for the purpose, and now uses an exact copy of the Murphy button with the exception of the spiral spring and plate, which can be safely omitted, as the magnesium button is completely absorbed in time. It can be boiled, and it keeps well, while it is simple, cheap and easily introduced. In dogs, the button still holds by the end of a week, and is not completely absorbed until after from two to four weeks. It might be possible, he thinks, to hasten absorption by adding some chemical to the magnesium, possibly hydrochloric acid. This would tend also to prevent another disadvantage of these magnesium buttons, namely, that sharp-edged splinters are liable to cleave off. His clinical experience with these buttons has been eminently satisfactory. In one case the button was passed in the stool at the end of a week. In another no trace of the button could be discovered with the Roentgen rays by the twelfth day. He gave the patients dilute hydrochloric acid after the ninth day (4 or 5 drops in a glass of water).

70. **Cancer of Large Intestine.**—Anschütz comments on the good results obtained by radical operation in cancer of the large intestine. He ascribes them to the lesser malignancy of cancer at this point and to the fact that with no other organ can the tumor and the glands be removed so radically as in these cases. Of 138 patients operated on at Mikulicz's clinic—1891-1906—91 were men. Nearly half the cases were inoperable when first seen. He regards the finding of a stiff loop of the intestine as the most positive indication for operative interference, even when no tumor can be palpated. It indicates obstruction and increased peristalsis in case of carcinoma of the colon; this sign was more or less pronounced in 60 cases. If recurrence is not observed in a year and a half, the prospects for a permanent cure are good. Some of the patients are still alive after 13, 10, 9 and 8 years after a single operation, and 14 out of 25 treated by an operation in three sittings. Fully 50 per cent. of the patients were permanently cured by surgical intervention; 10 to 15 per cent. did not survive the effects of the operation.

72. **Influence of Oxygen on After-Effects of Chloroform.**—Lengemann describes experimental research which demonstrates, he thinks, that chloroform given with oxygen is much less toxic than when given with air. But even at the best, enough toxicity is left to compel caution. He considers the ideal general anesthesia to date to be that induced with ether, possibly preceded by morphin, with only enough chloroform, in small amounts, to render the anesthesia more profound.

73. **Roentgen Treatment of Stiff Joints.**—Among the cases reported by Moser is that of a man of 52 who, since the age of 24, had suffered from pains and stiffness in the hip, probably the relics of an osteomyelitic process in the neck of the femur. He had tried all kinds of treatment—baths, massage, electricity, Swedish movements—but without results, the latter measures even increasing the pain. He walked with a cane, limping very much. Under Roentgen treatment the joint became less painful and he could use it with greater ease. The improvement continued progressively after suspension of the Roentgen exposures. About a dozen exposures of from five to ten minutes each were made in the course of three or four months, with a hard tube, at a distance of from 15 to 30 cm. After each exposure the patient lay down for a time. No benefit from Roentgen treatment was obtained in the cases of deforming arthritis, and in another case the exposures induced pain in a previously painless joint. The joints did not regain normal mobility in any instance, but it is a great gain to a patient to be able to raise the hand even to the head, when previously it could not be raised more than a few inches, or to be able to sit down and get up with ease instead of the act being accompanied by great pain and only accomplished with difficulty, as before the treatment in one of the cases.

77. **Contusion of the Epiphyseal Cartilage of the Head of the Femur.**—Schmidt here relates three instances of severe coxitis or coxa vara developing years after an apparently insignificant accident to the hip, injuring the epiphyseal cartilage and thus interfering later with the nutrition of the head of the femur. It is important for the diagnosis that an interval free from symptoms follows the primary injury. On suspicion of such an injury the physician should be careful not to render conditions worse by rough measures at reduction in case of dislocation. Suspicion of crushing of the epiphyseal cartilage indicates rest in bed for several weeks with extension and, later, cautious attempts to use the limb in dressings, relieving pressure and correcting the position of the limb.

78. **Surgery of Lungs and Pleura.**—Tiegel has performed numerous operations on the lungs and pleuræ of dogs in Sauerbruch's overpressure pneumatic cabinet, and states that it allows operations to be protracted for hours, with the pleural cavity opened, without the slightest signs of disturbance in the functions of lungs or heart, provided the anesthesia is thorough and profound. He analyzes a number of fatal injuries of the lungs or pleura that have been published and points out that in some of them the trouble was manifestly due to what he calls distension pneumothorax (Spannungsthorax), and not to extravasation of blood as assumed at the time. When the symptoms are due principally to the distension pneumothorax, his experience indicates that all trouble can be averted by puncturing the pneumothorax cavity and leaving a valve cannula in place until symptoms from this source have subsided. He gives an illustration of a valve cannula which he has devised for the purpose, and which he has found very efficient in both experimental and clinical experience.

80. **Prospects of Operative Treatment of Cancer of the Stomach.**—Hoffmann concludes his article with the remark that better prospects in regard to cancer of the stomach can not be expected in the line of improved technic, but only from earlier diagnosis. Physicians and the public should be trained to recognize the condition earlier. On an average 10.3 months elapse after the first symptoms before the surgeon sees the patient. There is an unmistakable connection between the duration of the symptoms and the possibility of radical removal of the cancer and ultimate cure.

83. **Bloodless Operations on the Skull Under Increased Atmospheric Pressure.**—Sauerbruch's overpressure pneumatic cabinet has been frequently mentioned in these columns, especially its advantages for allowing operative intervention on the lungs and pleura without fear of pneumothorax. He here relates experiences with operations on the skull in the overpressure cabinet. They allowed remarkable oversight of the physiologic conditions of the brain, especially in regard to compression of the brain and the conditions of the circulation through this organ. Among the practical results of his research is his announcement that a sharp distinction should be made between local pressure and compression from the cerebrospinal fluid. Measures which act only on the blood pressure, such as infusion, or have an influence merely on the filling of the veins in the skull, such as venesection, are of no use in local compression. Trephining is the only measure indicated in case of local compression of the brain, especially extradural. He advises trephining on suspicion of local compression even when signs of irritation and paralysis suggest trouble only in an entirely circumscribed region. It is not necessary to wait for the characteristic "pulse of compression," change in the type of breathing, vomiting and loss of consciousness, before feeling

justified in operating. Even slight disturbances in consciousness are an early symptom of compression and justify trephining before severer symptoms on the part of the medulla are observed. The trouble from local compression consists more in the pushing aside and compression of the brain matter than from the tension of the cerebrospinal fluid, and a large opening should be made, with permanent resection of the bone and corresponding dura. Even when the compression is due to the cerebrospinal fluid his experiences suggest that trephining is more certain in its results than mere lumbar puncture, even if often repeated.

Zeitschrift f. klinische Medizin, Berlin.
Last indexed, XLVII, page 1862.

87 (LX, Nos. 5-6, pp. 357-528) *Polycythemia with Enlargement of Spleen. (Erythrozytosis—Polyzythaemia rubra—megalosplenica.) H. Senator.
88 Changes in Liver Cells after Experimental Nephrectomy and Inanition. (Azidose.) M. Mosse.
89 *Spasmodic Mydriasis in Valvular Disease. ("Springende Pupillen.") Géronne.
90 Hemorrhagic Erythema Nodosum and its Relation to Purpura. (Erythema nodosum haemorrhagicum.) Id.
91 Experimental Study of Appearance of Sugar in Nephritic Dropsy. (Zucker im nephritischen Hydrops.) Bibergeil.
92 Elimination of Pathologic, Coagulation-modifying Albuminoids in the Urine in Nephritis. (Eiweisskörper im Harn bei Nephritis.) J. Brodzki.
93 *Experimental Study of Renal Dropsy. (Nierenwassersucht.) Georgopulos.
94 Id. Blanck.
95 Hemolysis in Nephritis. (Hämolyse bei Nephritis.) E. J. Leopold.
96 Action of Salts on the Kidneys in Experiments on Animals. (Einwirkung von Salzen auf die Nieren.) Id.
97 *Proportion of Water in the Blood Serum in Cardiac and Renal Dropsy. (Wassergehalt des Blutserums bei Herz und Nierenwassersucht.) H. Strauss.
98 (LXI, Nos. 1-2, pp. 1-200.) *Nature of Diabetes Insipidus. (Wesen des D. insip.) F. Seiler.
99 *Defective Development of Arterial System. (Hypoplasie des Arteriensystems.) S. v. Ritook.
100 *Cysticercus in the Fourth Ventricle. (Cysticerken im vierten Ventrikel.) A. Stern.
101 Dicrotic Pulse with Aortic Insufficiency. W. Janowski. Id. A. Nürnberg.
102 Experimental Tests of Isotonic Mineral Waters. (Prüfung isot. Mineralwasser.) P. Bergell and L. Laband.
103 Fat in the Blood in Diabetes. (Diabetische Lipämie.) G. Klemperer and H. Umber.
104 *Albumin Metabolism Dependent on Action of Nerves and Ferments. (Lehre vom erhöhten Eiweissstoffwechsel.) E. Aronsohn.

87. **Polycythemia with Enlargement of Spleen.**—Senator reports the results of study of the metabolism, especially of the gases, and of the blood in two cases of this affection. He thinks that the evidence is in favor of increased production of red corpuscles from hyperfunctioning of the bone marrow. Much light would be thrown on the affection if it could be determined that the enlargement of the spleen precedes the polycythemia. The only measure that seemed to relieve his patients was spontaneous hemorrhage or venesection, and the benefit was only temporary.

89. **Spasmodic Dilatation of the Pupils with Existing Valvular Affection.**—The patient was a woman of 47 with pronounced mitral insufficiency, stenosis and failing compensation. The left pupil was dilated more than the right, although the reaction was undisturbed. After reclining on the right side, the right pupil sometimes became temporarily dilated. Géronne assumes that the valvular affection was responsible for this anomalous mydriasis by intermediation of the sympathetic system, the cardiac ramifications of the nerve probably being involved in the valvular affection.

93. **Experimental Study of Renal Dropsy.**—All the articles in this number of the *Zeitschrift* issue from Senator's laboratory. This monograph by Georgopulos relates the findings in nephritis experimentally induced in lower animals with uranium or cantharidin. He has demonstrated that there is no constant parallelism between the amount of chlorids eliminated through the kidney and the proportion of chlorids in the dropsical accumulations of water. More water is retained, in proportion, than chlorids, thus lowering the chlorid content of the blood. The retention of water is not dependent, therefore, on the retention of chlorids. It depends, rather, on some primary disturbance in the water-secreting capacity of the kidneys. These findings are not corroborative of the salt theory in regard to renal dropsy, but speak against it. He adds that the pathologic findings in this experimental nephritis and the course of the affection apparently resembled those in human nephritis in every respect, and the conclusions based thereon can be applied also to man. He agrees with Senator that toxic substances circulating in the blood injure the vessel walls and lead to transudation when there is an over accumulation of water in them from the disturbance in the water-secreting faculty of the kidney. These assumptions are reinforced by the fact that injection of nephrectomized rabbits—free from dropsy—with a small amount of blood serum from the rabbits with the experimental nephritis was always followed by extensive transudation of fluid into the abdominal cavity. The results of these and other experiments suggest that copious ingestion of fluids has a favorable effect on the diseased kidneys so long as the diluting power of the kidney is unimpaired. On the other hand, it aids in increasing the dropsy if the water-secreting faculty of the kidneys is impaired. The retained water has a beneficial action, however, as it dilutes the toxic substances in the blood. The rabbits that were not given much water died with symptoms of intoxication, while none was observed with the rabbits which were given water freely. It may be that the lower molecular concentration and the less frequent development of uremia in parenchymatous nephritis, in contrast with interstitial nephritis, is the result of the retention of water. The elimination of water in case of contracted kidney generally proceeds normally while the secretion of the solid elements of the urine is much impaired. Restriction of water, for fear of its effects on the heart and dropsy, under certain circumstances may prove directly harmful for the organism as a whole.

97. **Water Content of Blood Serum with Cardiac and Renal Dropsy.**—Strauss has continued his study of the blood serum with a refractometer since his first publications on the subject three years ago, and here announces a number of interesting findings. Among them is the fact that in case of retention of water in consequence of kidney disease, the retention of water is always preceded by a primary retention of salt. This factor is missing in cardiac dropsy, which is the primary result of failing compensation. The changes in the blood serum are much more instructive than the results of research on the metabolism, in case of renal or cardiac dropsy. The findings by the refractometric method of investigation harmonize perfectly with the data learned otherwise. It gives direct insight into the action of diuretic measures on hydremic and dropsical conditions. The reduction of the proportion of water in the blood serum under measures to enhance diuresis can be accurately followed step by step with the refractometer. He gives some concrete examples from his clinical experience, adding that he was the first to call attention to the nephrogenic retention of salt and the consequent therapeutic indications in case of renal dropsy. He adds that the question of retention of salt has nothing to do with the treatment of impending or established uremia, although when the uremia is associated with a tendency to dropsy, the conditions for recovery are more favorable, as the poisonous substances are diluted, and can be removed by draining away the dropsical fluid.

98. **True Nature of Diabetes Insipidus.**—Seiler concludes from his clinical and experimental experiences that diabetes insipidus is the result of an anomaly in kidney functioning which consists in the fact that the kidneys are no longer able to secrete urine of a normal concentration. The concentration is always below normal. If sufficient fluid is not ingested, then the elements of the urine are retained and trouble follows. To obtain sufficient fluid for the purpose Nature calls for increased intake of fluid by increased thirst, and satisfying the thirst leads to the polyuria. This may possibly be the cause also of the polyuria observed with contracted kidney. It might be possible, he suggests, to influence the diabetes favorably by diuretics to improve the secreting conditions in the kidneys.

99. **Hypoplasia of the Arterial System.**—Ritook describes 17 cases in which the symptoms were observed which he explains by assuming defective development of the arterial system. He has found in the literature records of 56 cases of hypoplasia of the arterial system. The patients were all under 27, and they all exhibited extreme anemia, resisting treatment, and for which no other cause could be discovered. Defective develop-

ment of other organs was also evident, such as a very small heart, or hyperplasia of the genital organs, or defective blood production, as in leukemia and hemophilia. Early fatigue of youthful individuals with otherwise normal hearts, after comparatively slight physical exertion, is an important sign of the condition, as also subnormal temperature, very slight fever in febrile affections, and cold hands or feet permanently or periodically. Further symptoms are palpitations of the heart, amounting at times to actual angina pectoris, accompanying cardioptosis or following slight physical exertion, especially in individuals who are growing fast during puberty; hypertrophy of the left heart, if no other reason for it can be ascertained, but without the jugular pulse, the radial pulse corresponding to the hypertrophy or presenting very small pulse waves; acute or rapidly developing cardiac insufficiency after comparatively slight physical exertion, and, finally, low resisting powers in infectious diseases, especially the acute infections, on account of the early exhaustion of the heart. The condition was diagnosed during life in 12 of the 73 cases. Treatment can only be that of a valvular affection, with scrupulous avoidance of physical exertion even for persons apparently in good health.

100. **Cysticercus in the Fourth Ventricle.**—Stern relates the histories of four patients with cysticercus in the fourth ventricle, giving the postmortem findings and appending the details of 68 cases from the literature. The diagnosis is based on the pronounced and generally very violent symptoms of general pressure in the brain, headache, vertigo and vomiting, with intervals of freedom from symptoms. Pain and stiffness in the back of the neck, continuous vomiting and cerebellar ataxia point to an affection of the posterior cranial fossa, while choked disc, somnolence and slowing of the pulse show the increased intracranial pressure. In some rare cases there are also focal symptoms, such as diabetes, respiratory disturbances, cerebral and abducent paralysis. The diagnosis is rendered certain by the Bruns sign, that is, the sudden onset of severe cerebral symptoms when the head is brusquely moved. This sign was observed in a fourth of all the cases; it has been noticed also with tumors of the posterior cranial fossa. The affection frequently terminates with sudden death. In case of lumbar puncture, the sudden subsidence of the pressure after escape of a minimal amount of fluid is a sign of crowding in the posterior cranial fossa and is a warning against withdrawal of more fluid. With the death of the cysticercus the symptoms may subside, but this has been only exceptionally observed. We do not know how long the cysticercus lives. More favorable prospects are afforded by Oppenheim's discovery of calcified parasites in the brain in a case in which the patient had had no appreciable symptoms from their presence for years before his death. In another case in his experience a patient with cortical epilepsy had hydatid cysts elsewhere, and the epilepsy was assumed to be the result of the presence of the parasites in the brain. The seizures finally ceased and he can now be regarded as cured. In a case reported by Marchand a vesicle was found shriveled and others ruptured. These findings suggest the possibility of a more favorable outcome than has been the rule hitherto. Attempts have been made to treat the condition on the same lines as tapeworm, but without the slightest success. Bruns and Henneberg believe that it might be possible to incise the vermiform process of the cerebellum and evacuate by puncture the cysticercus vesicle in the fourth ventricle in case the cysticercus is free. This Bruns assumes to be the case when the patient becomes dizzy and falls when he moves his head brusquely. He warns, however, against attempting the operation if the fluid in the ventricle is under great pressure for fear of sudden death. The operation should be attempted only when the hydrocephalus is not very intense, as shown by the absence of headache. The most characteristic sign of cysticercus in the fourth ventricle is the striking alternation between serious symptoms and periods of entire freedom from symptoms. Lumbar puncture may be useful for diagnosis and treatment, as also puncture of the ventricle, according to Neisser's technic, to relieve the internal hydrocephalus.

104. **Albumin Metabolism.**—Aronsohn presents arguments to prove that the increased metabolism of albumin during fever depends on the action of the nerves and ferments. The assumption of a toxic decomposition of albumin has no scientific basis. The augmented albumin metabolism occurs only in case of fever or excessive nervous excitement, in cachexia, and also when the body cells are insufficiently supplied with carbohydrates and fat. During fever and nervous excitement the metabolism of albumin is increased by the increased innervation of the cells (irritation of the heat center). Cancer is not accompanied by increased metabolism except during febrile periods of cachexia. In exophthalmic goiter, pernicious anemia and afebrile tuberculosis the albumin metabolism is not enhanced. The increased elimination of nitrogen in case of phosphorus, arsenic and chloroform intoxication is due to the accompanying rise in temperature.

Archivio per le Scienze Mediche, Turin.

Last indexed, page 654.

105 (XXX, No. 4, pp. 341-451.) Hypophysis in Marmot During Hibernation and in Summer. (Su l'ipofisi delle marmotte.) A. Gemelli.

106 Etiology of Bacterial Necrosis. (Necrosi batteriche.) F. Vanzetti.

107 Extreme Hyperplasia of Thymus in an adult. (Enorme tumore del mediastino anteriore dovuto unicamente ad abnorme persistenza e forte iperplasia del timo.) G. Tarozzi.

108 Changes in Uterine Epithelium During Gestation in Certain Animals. (Epitelio uterino durante la gravidanza.) A. Carraro.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

MEDICAL DIAGNOSIS. A Manual of Clinical Methods for Practitioners and Students. Fifth Edition, Enlarged and Revised, by J. J. Graham Brown, M.D., F.R.C.P.E., F.R.S.E., Assistant Physician, Royal Infirmary of Edinburgh, and W. T. Ritchie, M.D., F.R.C.P.E., F.R.S.E., Clinical Assistant Pathologist, Royal Infirmary of Edinburgh, with 200 Illustrations. Cloth. Pp. 508. Price, $3.00. New York: Imperial Publishing Company, Edinburgh and London: William Green & Sons, 1907.

TEXT-BOOK OF THE PRACTICE OF MEDICINE. For Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics in Jefferson Medical College, Philadelphia. Second Edition, Revised and Enlarged, with 131 Engravings. Cloth. Pp. 1132. Price, $5.00 net. Philadelphia: Lea Bros. & Co., 1907.

TUMORS, INNOCENT AND MALIGNANT, Their Clinical Character and Appropriate Treatment. By J. Bland-Sutton, F.R.C.S., Surgeon to and Member of the Cancer Investigation Committee of the Middlesex Hospital. Fourth Edition, with 355 Engravings. Cloth. Pp. 675. Price, $4.50 net. Chicago: W. T. Keener & Co., 1907.

TEXT-BOOK OF OPHTHALMIC OPERATIONS. By Harold Grimsdale, M.D., F.R.C.S., Ophthalmic Surgeon to St. George's Hospital, and Elmore Brewerton, F.R.C.S., Ophthalmic Surgeon to the Metropolitan Hospital. Cloth. Pp. 349. Price, $5.00 net. Chicago, W. T. Keener & Co., 1907.

LIST of the Fellows, Members, Extra-licentiates and Licentiates of the Royal College of Physicians, London, and of the Holders of the Diploma in Public Health. Granted Jointly by the College of Physicians and Surgeons. Paper. Pp. 326. 1907.

FOURTH ANNUAL REPORT OF THE SUPERINTENDENT OF THE BUREAU OF GOVERNMENT LABORATORIES for the Year Ending Aug. 31, 1905. By Paul C. Freer, Superintendent of Government Laboratories. Paper. Pp. 24. Manila Bureau of Printing, 1906.

ALCOHOL, The Sanction for Its Use, Scientifically Established and Popularly Expounded by a Physiologist. Translated from the German of Dr. J. Starke. Cloth. Pp. 317. New York and London: G. P. Putnam's Sons, 1907.

EYE INJURIES AND THEIR TREATMENT. By A. Maitland Ramsey, M.D., Fellow of the Faculty of Physicians and Surgeons, Glasgow. Illustrated. Cloth. Pp. 210. Price, $6.00. New York: The Macmillan Company, 1907.

FIFTY-FIRST ANNUAL REPORT on the Births, Marriages and Deaths in the City of Providence, for the Year 1905. By Charles V. Chapin, M.D., City Registrar. Paper. Pp. 239. Providence: Snow & Farnham, 1906.

ENCYCLOPEDIA AND DICTIONARY OF MEDICINE AND SURGERY, vol. III. From Ea to Gu. Leather. Pp. 535. Price, $5.00. Edinburgh: William Green & Sons. Chicago: W. T. Keener & Co., American agents, 1907.

JOHNS HOPKINS HOSPITAL REPORTS. Volume XIII on Studies in Urological Surgery and volume XIV on Studies on Hypertrophy and Cancer of the Prostate. Paper. Baltimore: Johns Hopkins Press, 1906.

FIFTH ANNUAL REPORT of the Director of the Bureau of Science. By Paul C. Freer, Director of the Bureau of Science, for the Year Ending Aug. 1, 1906. Paper. Pp. 24. Manila Bureau of Printing, 1906.